THE ECONOMICS OF DRG-BASED PHYSICIAN REIMBURSEMENT

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ACKNOWLEDGMENTS

There are several people whose contributions to these papers should be acknowledged. Both Lynn Etheredge and Renate Wilson provided most helpful critical reviews, and both John M. Grana and Sandy M. Yamashiro gave many useful and insightful comments. Also, Jean McGowan, Claudia Cole, Jennie Best, and Wanda Jones deserve thanks for word processing.

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The Center for Health Affairs
Project HOPE

HCFA Grant No. 18-C-98567/3-01
December, 1985

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EXECUTIVE SUMMARY

This study identifies and discusses the trade-offs involved in various Medicare physician payment reform options. While DRG-based physician payment is thoroughly discussed, other approaches such as capitation and relative value scales are considered. Also, while the focus is on physician payment through Medicare, issues relating to physician payment in general are discussed where appropriate. The approach of this study is that of the economist; its objective therefore is not to prescribe a best solution, but to list options, identify trade-offs, and discuss policy implications.

There are five papers within this study: one background paper that discusses the environment created by an aging population, increasing physician supply, and changing physician services market, a literature review of physician payment, and three concept papers. The three concept papers focus on three distinct yet related dimensions of physician payment: price setting, who should receive the payment, and the unit of payment.

Some of the major points made in the literature review and background paper are summarized below:

- The growing size of the aged population, coupled with the lack of an apparent significant reduction in the morbidity rates of that group, signal an

in the morbidity rates of that group, signal an increase in Medicare spending.

- o While the increasing physician supply may ultimately lead to lower prices for physician services, there is little evidence that physician supply increases to date have led to a decline in expenditures.
- o Fee screens are a relatively inflationary pricing mechanism, and the literature shows that fee controls or freezes have had limited success.
- o Payment based on the procedure has undesirable incentives for unbundling, procedure creep, multiple physician involvement, and over-specialization.

The three concept papers consider in detail the following options:

- o For Price Setting:
    - Charge-based fixed fees
    - Cost-based fixed fees
    - Competitive bidding
    - Consumer incentive plans

- o As the Recipient of payment:
    - The Medical Staff
    - Group larger than a Medical Staff

  - Group smaller than a Medical Staff
  - Primary Attending or Gatekeeper Physician
  - The Patient

- As the Unit of Payment:
  - Procedure
  - Case
  - Episode
  - Capitation

These options are discussed where possible in perspective of the existing literature. Where no empirical evidence exists, conceptual analyses are performed. Finally, policy implications are discussed. Among the most important of these is that if capitation is the desired ultimate payment mechanism, then payment based on the case - such as under a DRG system - is not a good intermediate step.

Aging Population, Increasing Physician Supply, and the Physician Services Market

Presented at the Conference on
"The Evidence on Medicare Physician Payment alternatives,"
January 16-17, 1985, Washington, D.C.

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I. Introduction

As part of Project HOPE's HCFA-sponsored study of physician payment reform. I have been asked to provide some descriptive background on two important factors affecting the market for physician services: the aging of the U.S. population and the increasing supply of physicians. These two trends have a momentum of their own that will tend to increase Medicare physician expenditures in the coming years. To document these trends, I'll be presenting estimates--taking a long run perspective--from a variety of published sources and articles.

II. Aging Population

The future impact of the aging population on the future demand for services can be broken into three components:

1. The growth in the elderly population that would occur without future changes in mortality or morbidity.
2. Growth due to future reductions in mortality among the elderly.
3. Changes in morbidity patterns that could affect future demand.

I'll quickly move through some background data on each of these factors to establish some impressions about trends and patterns.

First, I'll summarize the recent and projected growth in the elderly population, defined as those over age 65.

[Slide 1]

The Social Security Administration (1981) estimates that the elderly population grew by 55 percent between 1960 and 1980. Assuming continued increases in life expectancy among the elderly, they project 40 percent growth by 2000 to 36 million, and another 45 percent by 2020. The percent

of the population that is elderly would increase from 11 percent in 1980 to over 17 percent by 2020. Each of the three age subgroups shown will grow both in absolute terms and as a percentage of the population in those forty years. There is an interesting shift in the composition of the elderly over time, as reflected in percentage age 65-74. This percentage falls by 2000, suggesting the elderly will be getting older. But by 2020, the baby boomers will have joined the ranks of the elderly so that the average age of the elderly may be younger.

The actuaries at Social Security also make alternative projections based on different mortality assumptions. Their lower alternative puts the elderly population in 2000 at 35 million and the higher at 39 million, as compared to the middle estimate of 36. This suggests that the majority of the increase is not dependent on continued improvement in elderly life expectancy.

What does this aging of the population imply about the demand for physician services in the future?

[Slide 2]

Age-specific utilization data (from Rice and Feldman, 1983) suggest that physician use increases with age. Cross-sectional data on hospital days per 1000 population show a significant growth with age among the elderly. Ambulatory physician visits have a flatter profile, and may decline slightly at higher ages. Institutionalization in nursing homes increases tremendously with age. On balance, the physician services associated with hospitalization and nursing home care probably outweigh the decline in ambulatory visits, so that older persons use more physician services.

Most observers agree (see, for example, Rice and Feldman, 1983; and Manton, 1982) that these utilization patterns have not changed dramatically

over time--at least prior to the introduction of hospital prospective payment. When looking to the longer period--over the next ten to forty years--it is less clear that we should assume that the pattern will hold. This brings us to the topic of future changes in mortality and morbidity.

In the past five years a lively and important debate has begun on the nature and trends of morbidity and mortality among the aged. James Fries (1980) initiated the controversy with the optimistic forecast that the period of morbidity prior to death among the elderly is compressing or shortening and that life span among the elderly is more or less fixed for biological reasons at about 85 years. A future compression of morbidity could conceivably lead to declines in medical expenditures. Others have argued that Fries may prove wrong on both counts: First, there is evidence that average life span is increasing over time. And second, there is little evidence that morbidity for the elderly of a given age is declining over time.

[Slide 3]

Recent mortality estimates imply that in the 1970s there was a dramatic increase in the life expectancy at age 65 for both males and females after a period in the 1960s of slower increase.

Interpretation of the morbidity data is less clear. Among the non-institutionalized elderly, the percentage with fair or poor health increases up to age 84 and then declines. This ignores those 85 and over in nursing homes. On the other hand, among this group there is a dramatic increase with age in those with limitations in the activities of daily living. Those who have examined recent cross-sections of these measures among the elderly as a group have found very little change, during a period when the elderly population was aging. This is not inconsistent with the Fries' hypothesis,

though confirmation is hampered by a lack of age- and disease-specific measures.

Assessing the implications of these trends for the utilization of physician services is also hindered by the lack of reliable estimates of the age-specific total physician expenditures. Only Medicare expenditures are available. The most useful estimates are those by Lubitz and Prihoda (1983), who emphasize the importance of expenditures in the last year of life. They found that 28 percent of Medicare expenditures are for those in their last year of life.

[Slide 4]

Their estimates of total medical expenses are shown for two groups of Medicare enrollees in 1977-78, those who died, the decedents, and those who didn't, the survivors. Over 90 percent of those who died in all age groups had some Medicare expenditures although the amount of the expenditures declines with age, because deaths of the oldest enrollees are more often in nursing homes. Both Medicare use and expenditures increase with age among the survivors. If expenditures by decedents and survivors were averaged by age group, mean expenses would increase dramatically with age. But assuming such a pattern will hold in future cross sections would be misleading if life expectancy continues to improve, pushing the high costs of dying to later in life The last column shows that after adjusting for the higher probability of dying among the more aged, there remains only a slight increase associated with age (Fuchs, 1984). However, the fact that mean expenditures among survivors increase with age--though not inconsistent with the compression of morbidity over time--does suggest that older enrollees have more costs associated with their morbidities.

Now I would like to conclude the demand side, by looking at the physician component of these Medicare expenditures, remembering that 42 percent of physician expenditures among the elderly are not paid by Medicare (Waldo and Lazenby, 1984).

[Slide 5]

The pattern for Medicare physician expenditures is similar to that for total Medicare expenditures. They are much higher in the last two years of life as compared with expenditures of survivors. The survivor's column shows, that as they get one year older, Medicare spends about 10 percent more on their physician care in real terms.

This pattern among the survivors suggests the aging of the population leads to a greater utilization of physician services, above the sheer increase in numbers.

All of this ignores the important influence of medical technology, which appears in some ways as an element outside the system and in other ways as an object of choice. Indeed, a decline in morbidity might not reduce expenditures if more costly technologies are applied in the shorter period.

To summarize, subject to the uncertainty surrounding medical technology, projected trends in mortality will tend to increase Medicare expenditures for physician services while any compression of morbidity appears unlikely to result in substantial savings. Most importantly, the sheer growth in numbers of the elderly will dominate the impact of mortality or morbidity changes.

III. Increasing Physician Supply

Now I would like to turn to the supply side. Both GMENAC, the Graduate Medical Education National Advisory Committee, and the Bureau of Health Professions project large increases in physician supply by 1990 and 2000, both in absolute numbers and relative to the population.

[Slide 6]

The supply of physicians will nearly double between 1978 and 2000 (GMENAC, 1981). And the rate per 100,000 population will increase from 171 to 220 by 1990, a growth of 29 percent. Growth during the 1970s was 25 percent. This projected growth even exceeds that of the elderly population.

GMENAC saw specialty imbalances, symptomatic of unmet needs, as a greater problem than the projected oversupply of physicians.

[Slide 7]

Comparing the projected 1990 specialty distribution to 1978 shows a continuation of trends toward greater specialization, including a decline in the proportion in family practice and a substantial increase in medical subspecialties. The three primary care specialties, at the top, show a slight decline in share, though they will increase in numbers relative to the population.

Neither GMENAC's nor the Bureau of Health Profession's supply projection models take direct account of the reimbursement system. Some would argue that--influencing specialty composition--is one of the areas where changing reimbursement methods could have a substantial beneficial effect in the long run.

What will be the impact of this increasing supply of physicians on the physician services market? There have been many studies which provide some

clues as to the impacts of increasing supply. I will attempt to briefly summarize the results in the several areas shown.

[Slide 8]

First, a major area of concern has always been a perceived geographic maldistribution of physicians. Studies by RAND (Newhouse et al., 1982) suggest that as the aggregate number of physicians increased in the seventies, there was a diffusion into more and more small communities. Geographic access improved. The introduction of hospital DRGs may counter this trend by encouraging regional specialization in some procedures.

No issue in health economics is more controversial than the impact of increases in supply on utilization and prices. This controversy falls under the label of the supplier-induced demand hypothesis--the belief that increases in supply increase prices and utilization. Generally speaking, the standard economic model predicts that a shift in supply will lead to greater utilization (and lower prices). The principal difficulty in testing this hypothesis is that increases in supply, by increasing the availability of practitioners, reduce the time costs of obtaining care in ways that are difficult to measure. Without delving into the theoretical and empirical arguments, suffice it to say that increased utilization has nearly always been associated with increases in supply.

The more interesting question is: might the increase in supply lead to a fall in prices, so that total expenditures for physician services might fall? Since the demand for physician services is insensitive to price, a fall in price could lead total expenditures to decline. The historical evidence of the 1970s does not suggest this is happening; the cross-sectional evidence is more mixed. At best, the most comprehensive empirical

analyses (Sloan, 1982) have found only a slight negative impact of physician supply on fees.

Increasing physician supply also affects the practice characteristics of physicians. This includes such things as waiting time, the duration of encounters with patients, the organization of practice (partnerships vs. groups vs. participation in HMOs), the amount of ancillary resources used in the practice, and perhaps even the choice of specialty of the physician. For example, both the time series and cross-sectional evidence suggest that in areas where there are more physicians, more time is spent per patient with a given diagnosis. It has also been observed that the expense per visit has gone up in real terms over time. Doctors may be competing for patients on these nonprice dimensions. Finally, the trends toward group practice and the growth of HMOs suggest that it is becoming more difficult for physicians to enter the market.

The bottom line is what happens to incomes and expenditures. Again, there is no evidence to date that an increasing supply of physicians has been associated with a decline in expenditures for physician services. In the past the increasing supply of physicians has been associated with increasing competitiveness on nonprice dimensions, increasing per capita expenditures, and higher real fees. Many now hope that the supply has reached the point that physicians will have to begin to compete on price. Indeed, the remarkable thing is that real physician incomes have been maintained in the face of a dramatic increase in physician supply in the 1970s. Many believe that physicians earn excessive incomes in relation to their educational investment. Economic theory would suggest increased supply would lower the incomes of marginal entrants. There is recent anecdotal evidence that more physicians are discounting fees, joining PPOs,

or accepting lower salaries--signs of a more competitive market; it is difficult to discern an aggregate impact as yet.

On balance, the evidence suggests that--so long as we continue with the current system for Medicare physician reimbursement--it would be excessively optimistic to expect increasing physician supply to reduce total expenditures for physician services, other things equal.

IV. Conclusion

I'll end by summarizing some general implications of these two trends for the physician services market.

[Slide 9]

First, there will be a growing demand for physician services among the elderly. Despite the debate about changes in morbidity and mortality, the sheer weight of numbers will produce more of a shift in demand than will changes in the composition of that population due to changing mortality or morbidity. Still, planning is difficult because substantial uncertainty surrounds these future projections. Developments in the area of medical technology are especially unpredictable. Efforts may be better spent building a system that responds with flexibility rather than in attempting to fine tune policies to inherently uncertain forecasts.

Second, the supply of physicians is growing faster than the elderly population. This is likely to increase per enrollee expenditures on physician services. And if current patterns of reimbursement and practice persist, the specialty distribution of physicians--despite the increase in supply--will adjust only slowly to changing health needs of the population.

Finally, since Medicare will become an increasingly important buyer in aggregate terms, the influence of its reimbursement policies will grow. We

are no doubt in a crucial time with regard to the future of physician practice in this country.

Slide 1

GROWTH IN ELDERLY POPULATION, 1960-2020

	1960	1980	2000	2020
Number (in millions)	16.7	25.9	36.3	52.7
Percent Change (Over 20 years)	--	55	40	45
Percent of US Population:				
All Elderly	9.1	11.1	13.2	17.2
Age 65-74	6.0	6.7	6.7	9.8
Age 75-84	2.5	3.3	4.6	4.9
Age 85+	.5	1.1	2.0	2.5
Percent of Elderly				
Age 65-74	66.4	60.4	50.6	57.2
Age 75-84	28.0	29.7	34.5	28.3
Age 85+	5.6	10.0	15.0	14.5

Source: Based on Social Security Administration (1981).

Slide 2

AGE-SPECIFIC UTILIZATION RATES
(Per 1000 Population)

Sex/Age	Hospital Days	Physician Visits	Nursing Home Residents
Males			
45-64	1,588	4,388	--
65+	4,244	5,926	31
65-74	3,370	5,540	13
75-84	5,476	6,799	47
85+	7,674	6,362	140
Females			
45-64	1,604	5,680	--
65+	4,000	6,764	60
65-74	2,977	7,018	16
75-84	5,009	6,525	81
85+	6,599	5,678	252

Source: Rice and Feldman (1983).

Slide 3

MORTALITY AND MORBIDITY AMONG ELDERLY

Life Expectancy at Age 65

Year	Males	Females
1950	12.8	15.0
1960	12.8	15.8
1970	13.1	17.0
1980	14.1	18.3

Morbidity

Age	Percent with Health Fair or Poor	Percent with Limitations in ADL
65-74	29.8	5.1
75-84	31.8	15.0
85+	28.6	34.6

Source: Mortality and self-reported health from Waldo and Lazenby (1984). Activity limitations from Rice and Feldman (1983).

Slide 4

MEDICARE USE AND EXPENDITURES

		Decedents		Survivors		
Age	Percent Dying	Percent Use	Mean Expend.	Percent Use	Mean Expend.	Adj. Exp.
67-69 years	2.8	91	$5,801	53	592	737
70-74	3.6	93	5,466	56	668	802
75-79	5.5	93	5,056	60	771	891
80-84	8.1	93	4,274	62	859	955
85+	14.7	91	3,285	63	889	956

Source: Lubitz and Prihoda (1984).

Slide 5

MEDICARE PHYSICIAN EXPENDITURES

Period	Decedents	Survivors
Last Year or 1978	$769	198
Next to Last Year or 1977	338	176

Source: Lubitz and Prihoda (1984).

Slide 6

PHYSICIAN SUPPLY PROJECTIONS

	Actual	Projected	
	1978	1990	2000
Number	374,800	535,750	642,950
Rate (Per 100,000 Population)	171	220	247

Source: GMENAC (1981).

Slide 7

PROJECTED SPECIALTY DISTRIBUTION
(Percent of Total Supply)

Specialty	Actual 1978	Projected 1990
General and Family Practice	18.1	16.5
General Internal Medicine	13.1	13.8
General Pediatrics	6.4	7.0
Medical Subspecialties	9.1	13.8
General Surgery	8.2	6.6
Obstetrics/Gynecology	6.2	6.4
Surgical Subspecialties	12.0	12.3
Other Specialties	27.1	23.4

Source: GMENAC (1981).

Slide 8

Impacts of Increasing Supply on:

- Geographic Distribution
- Utilization
- Prices
- Practice Characteristics
- Incomes and Expenditures

Slide 9

Implications for Physician Services Market:

1. Growing demand among the elderly
   - numbers more important than composition
   - uncertainty makes planning difficult

2. Supply of physicians increasing faster than population
   - likely to increase per capita expenditures
   - but specialty distribution unresponsive to needs

3. Importance of Medicare as a buyer
   - in aggregate terms
   - influence of reimbursement policies

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PHYSICIAN PAYMENT SYSTEMS: A REVIEW OF HISTORY, ALTERNATIVES AND EVIDENCE

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I. PHYSICIAN PAYMENT SYSTEMS AND THE MEDICARE PROGRAM: ISSUES AND HISTORY

A. OBJECTIVES OF THE LITERATURE REVIEW

In 1983, the Medicare program accounted for over 7 percent of the Federal budget. Medicare expenditures have risen rapidly in recent years. Payments to physicians for providing services to Medicare beneficiaries increased at a 20.4 percent annual rate between 1980 and 1983; Federal expenditures for the Medicare Supplementary Medical Insurance Trust from general revenues increased at 28.2 percent annually over the same period (Jencks and Dobson, 1984).

While hospital (Part A) expenditures account for the majority of all Medicare expenditures, the dramatic increases in expenditures for physician services requires close scrutiny since, unlike Part A benefits which are paid by the Medicare Trust Fund, these services are paid from a combination of Part B premiums, copayments, and general tax revenues. Increases in Medicare Part B expenditures imply a worsening of the already substantial Federal budget deficit and, thus, has potential impact on other public programs.

Concern about the costs of the Medicare program led Congress to mandate the implementation of a Prospective Payment System (PPS) for hospital services. This new payment system is now in place and early evidence suggests that it may be inducing substantial reductions in hospital lengths of stay and in other patterns of care (Mathematica Policy Research, 1984). Despite this initial response, it is recognized by Congress and by HCFA that physicians are the dominant actors in the market for health services. Introducing changes in the system under which Medicare pays

hospitals may be viewed as putting in place a price control on one input which is used by physicians to produce services. This perspective suggests that the DRG-based prospective payment system for hospitals will create distortions in this market in the absence of other, broader reforms of the Medicare payment system.

Congress, recognizing these problems, has requested that HHS and HCFA review the Medicare payment system for physician services and prepare a set of recommendations on the feasibility and desirability of changing the current system for paying physicians. To prepare these recommendations, HCFA needs information on the current system, evidence on its limitations and strengths, as well as conceptual and empirical evidence of the potential impacts of alternative payment systems under consideration. This project is designed to provide that background and foundation for HCFA.

B. HISTORICAL BACKGROUND

The market for health services has been profoundly influenced by the introduction and rapid expansion of health insurance coverage during the past 50 years. While there are a number of factors which have influenced cost trends, it is clear that the reduction in out-of-pocket costs to consumers of health services has been a major cause of rapid increases in prices, utilization, and expenditures for health services. A contributing factor has been the payment systems used by third party payers -- including Federal programs -- which reimburse costs and impose few, if any, restrictions on the quantity or type of services provided.

1. A Brief History of Health Insurance

Prior to World War I, health insurance was generally not available. While a few small commmercial insurers offered accident and health protection, most were unsuccessful and dropped out of the market (Woodward 1978).

The initial impetus to the development of health insurance was the Great Depression of the 1930s. Potential patients were unable to pay for health care and, in turn, physicians and hospitals experienced reduced demand for services and were not paid for many services provided. In response to this situation, hospital and medical societies banded together to sponsor Blue Cross and Blue Shield plans which provided consumers with a mechanism to prepay hospital and physician expenses. Although these nonprofit health insurance plans were originally sponsored by hospital and medical societies, over the years this control has dissipated (Kass and Pautler, 1981).

Commercial health insurance became generally available during the 1940s. Much of the growth of health insurance during this period was associated with the trend to employment-based insurance that developed during World War II. In 1942, only 37 companies were writing group health insurance policies; by 1951, there were 212 companies offering group policies.

By 1965, private insurance paid for nearly 25 percent of all personal health care expenditures of the population. The majority of private health insurance, however, was provided through employment based group policies. The retired elderly and the non-working poor often were unable to obtain private health insurance due to poor health and/or

financial incapacity. To improve access to health services by these groups, the Medicare and Medicaid programs were implemented in 1966 under Title XVIII and Title XIX of the Social Security Act.

By the early 1980s, approximately 90 percent of the general population and over 95 percent of the elderly were insured for health services (Carroll and Arnett, 1981). In 1982, private health insurance paid for 45 percent of all incurred health costs. The Medicare program paid for 45.3 percent of the elderly population's health care expenditures, with Medicaid picking up an additional 13.7 percent. On average, individuals over 65 years of age paid 36.1 percent of their health care costs (U.S. House of Representatives, 1983). It has been estimated that nearly one-third of these out-of-pocket costs are further reduced through private health insurance — Medi-gap — policies purchased by Medicare beneficiaries (Jencks and Dobson, 1984).

The substantial shift to third party payment for health services has significant implications for the operation of the market for health services. The principal effect of health insurance is to reduce the price to consumers of purchasing health services. This price reduction induces an increase in the use of insured services, as well as causing insured consumers to have less concern about the relative cost of providers (Pauly, 1968; Budde and Meeker, 1978; Cantwell, 1981). As consumers have demanded greater quantities of services and become less sensitive to price changes, the result has been rapid increases in prices and in expenditures for health services. While most insurance policies include deductibles, these have generally had only a small impact on consumer behavior. Consequently, as employers have been faced with higher premiums for their employees'

health insurance, there has been considerable interest in recent years in developing mechanisms for controlling costs of health services. Increased consumer cost-sharing, introduction of new competition into the insurance and delivery system markets, and more intensive claims review systems are a few of the avenues which are being pursued by private insurers in their attempts to control rising claims costs and, in turn, the premiums which have been charged to employers.

These consequences of prevalent insurance coverage are of particular concern for the Medicare program which finances its SMI program from a combination of premiums and general tax revenues. Rapid rises in prices and expenditures impact on the total Federal budget and on the budget deficit. Since the objective of the Medicare program is to assure access to essential health care by the elderly, substantially increasing the out-of-pocket costs to this group is not a feasible mechanism for controlling future price and expenditure rises. Thus, the Health Care Financing Administration and Congress are re-examining the system currently used to pay physicians and alternatives which may impact on physician behavior to induce greater efficiency and more careful use of resources on behalf of Medicare beneficiaries.

2. Historical and Current Physician Payment Systems

Private health insurers, prior to the development of the Blue Shield and Blue Cross programs, initially provided insurance that paid a cash indemnity to the insured if an accident or illness occurred. Under these early systems, patients controlled the payment to physicians and received a cash amount from the insurer to offset these costs.

With the development of the "Blues", however, the method of paying hospitals (and physicians, to a lesser extent), changed. Blue Cross reimburses hospitals directly for service benefits rendered — payment is made on behalf of the insured, but not through the insured. Blue Shield introduced a two-tiered plan; physicians were paid directly for service benefits on behalf of low income enrollees and indemnity benefits were paid to higher income enrollees who then were responsible for paying the physician directly.

Over time, commercial insurers have moved away from cash indemnity benefits, as has Blue Shield. Instead, patients — or physicians on behalf of patients — are reimbursed for services provided. Third party payers have developed fee screens, however, to limit payments to reasonable levels. The fee screen most commonly used is based upon the "usual, customary, and reasonable" (UCR) concept, which was initially developed by Blue Shield in 1954 (Showstack et al., 1979). The UCR fee for a particular physician is based upon the lower of her historical (usual) charges, the customary charges of other physicians in the same locality, and reasonableness (i.e. special circumstances which may warrant higher payments). The UCR payment system allows considerably more flexibility to physicians than does indemnity/fee schedule payments. In particular, it incorporates a means for increasing payment levels automatically as inflation pushes customary charges up (Sloan, Cromwell, and Mitchell, 1978).

When the Medicare program was first implemented, the UCR payment system was adopted. It was assumed that UCR would be neutral in its effect on physicians fees and would insure that Medicare beneficiaries would have

access to all physicians. Many administrative aspects of the UCR system, including resolution of locality and specialty determination issues, were left up to the carriers. However, over time, it was recognized that there were variations among carriers in their allowable charges. Consequently, the Medicare program developed guidelines which foster greater uniformity.

The current system of physician payment under Part B of the Medicare program uses a fee screen based upon the actual, customary, prevailing, or reasonable (CPR) charge for a procedure. Under this system, Medicare pays 80 percent of the least of (1) the actual charge; (2) the physician's customary charge 18 months earlier; (3) the 75th percentile[1] of prevailing customary charges by all physicians in the locality; or (4) the reasonable charge if special circumstances are present (Jencks and Dobson, 1984). Increases in the prevailing charge screen are limited under the Medicare program to not exceed an index of practice costs and wage increases. Under the Deficit Reduction Act of 1984, further increases in the fee screens were "frozen" until October 1, 1985, and it is considered likely that Congress will extend the freeze for at least another fiscal year. If this freeze is in place for a number of years, the Medicare fee screen will become, in effect, a fee schedule (U.S. House of Representatives, 1983).

It is critical to understanding the market for physicians services to recognize that the amount paid by a third party payer does not

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[1] The prevailing charge limits were initially at the 90th percentile. In 1969, this screen was reduced to the 83rd percentile, and in 1971 to the 75th percentile.

necessarily reflect the full payment. Under Blue Shield, there are three types of options:

1. Full service plans pay 100 percent of charges of participating physicians. The participating physician agrees not to bill patients directly.[2]

2. Indemnity plans pay a fixed amount to the insured for each service. Physicians bill their patients for any amounts which exceed the indemnity payment.

3. Partial service plans are those which provide full service benefits to patients with low incomes and indemnity benefits to those with higher incomes. At present, partial service programs are most common among Blue Shield subscribers. (Sloan et al., 1978).

Under the Medicare program, patients are allowed to assign benefits to the physician. If the physician accepts assignment, she agrees to bill the patient for no more than a 20 percent copayment. Physicians who do not accept assignment are permitted to bill the patient for any excess charge above the Medicare CPR-based reimbursement level. Physicians are permitted to accept or reject assignment on a bill-by-bill basis, unless they elect to become Medicare "participating" physicians who agree to accept assignment for all Medicare claims. In the first year of the "participating" physician program, nearly 30 percent of physicians agreed to participate (American Medical News, February 8, 1985).

3. The Medicare Program Today

The Medicare program is currently being closely re-examined. With the implementation of a DRG-based PPS to hospitals, and the introduction of

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[2] Each Blue Shield plan is required to have participation agreements with a minimum of 50 percent of the physicians in its geographic area.

competition into this market through the TEFRA regulations permitting Health Maintenance Organizations or other Competitive Medical Plans to receive capitation payments for Medicare beneficiaries, substantial changes in the program and its functioning may be expected.

The primary focus of Congress and HCFA has now shifted to the SMI program. In the Social Security Amendments of 1983 (P.L. 98-21) and the Deficit Reduction Act of 1984 (P.L. 98-369), Congress has directed HCFA to begin developing recommendations for a Prospective Payment System for physician services under Medicare.

At the same time, the Medicare program has imposed a freeze on the level of reimbursements to physicians under the CPR screen and has offered physicians the option of becoming "participating" physicians under Medicare. These steps were expected to be short-term interim means to slowing the rapid rise in SMI payment on behalf of Medicare beneficiaries. The decision to be made about physician payment reform under the Medicare program will, presumably, be a more permanent resolution of the problem facing Congress, HCFA, and Medicare beneficiaries.

C. OVERVIEW OF THE PROJECT

The Health Care Financing Administration has given Project HOPE a grant to examine a number of conceptual issues related to physician payment reform. Under this grant, four papers are being prepared: (1) a review of the history and evidence on alternative physician payment systems, and conceptual examinations of (2) pricing in the physicians market; (3) unit of payment issues; and (4) appropriate recipients of payments for physician services. The review of the history and evidence on physician payment systems has been conducted concurrently with the development of the concept papers; it stands as a separate document which is intended to provide a

broad background for the entire project. Each of the concept papers will provide a much more detailed discussion of the evidence, inside and outside the market for health services, needed to fully consider the alternatives under consideration.

The literature review has been structured to parallel the three conceptual papers which are being prepared. This section has provided an historical background on the trend to third party payment for services, the Medicare program, and historical and current physician payment systems under insurance and under the Medicare program. Section II will describe alternative methods of price setting in the physicians' services market and will review the evidence on the effects of these alternatives on the market and on participants. Section III focuses on the issue of the unit of payment; alternatives to fee-for-service are described, and the evidence on the effects of each alternative is considered. In Section IV, we examine the direction of payments to physicians', patients, or other recipients and examine the evidence of the effects of choosing alternative payment recipients. Finally, in Section V, what is known about alternative physicians payment systems and their impacts on physician behavior, patients, other market participants, and the Medicare program will be summarized. Areas which are relatively unexplored or for which no clear evidence is currently available will be highlighted.

II. IMPACTS OF ALTERNATIVE METHODS OF SETTING PAYMENT LEVELS

A. OVERVIEW

An important feature of the physicians' services market in the U.S. is the prevalence of third party payments, which in 1981 accounted for 62 percent of all payments for physicians' services (Gibson and Waldo, 1982). The vast majority of these payments are made on a fee-for-service basis with payment levels determined either by a Usual, Customary and Reasonable (UCR) fee screen approach or by a fee schedule approach. Because of the concern in recent years over rapidly escalating expenditures on medical care, these two methods of setting payment levels have received increased scrutiny. In the following sections, the UCR and fee schedule approaches are described and evidence regarding their impacts on the performance of the market for physician services is reviewed.

The method by which payment levels are set has important implications for the extent to which a system of physician reimbursement can meet three major goals. The first goal is to ensure that an adequate supply of services is provided and that physicians have adequate incentives to serve the Medicare and Medicaid populations. Ensuring an adequate supply of care requires not only an appropriate total supply of physicians but also an appropriate distribution by specialty and geographic region. The second goal is to encourage the provision of high quality care. This requires, among other things, that the mix of services provided be guided by medical considerations and not by the incentives created by the reimbursement system. The final goal is to restrain the rising expenditures on medical care by restraining fee inflation and influencing such physician decisions as

service mix and choice of care setting. The discussion below focuses on the extent to which the achievement of these goals is influenced by the methods by which third-party reimbursement levels are set.

B. DESCRIPTION OF ALTERNATIVE METHODS OF SETTING PAYMENT LEVELS

1. Usual, Customary, and Reasonable (UCR)

The Usual, Customary, and Reasonable (UCR) fee screen system is currently used by Medicare,[1] many state Medicaid programs, and many Blue Shield plans to set payment levels for physician services. Under UCR, the allowable rate of payment for a covered service is the minimum of the actual billed charge and the values of two fee screens. The first of these, called the Level 1 screen or "usual" fee, is the physician's median or modal charge for the service, generally computed with charge data from the prior year. The second, called the Level 2 screen or "customary" fee, is a percentile of the distribution of Level 1 screens of all physicians in the same geographic area. Many insurers, including Medicare, establish separate Level 2 screens for specialists and general practioners. In special cases, such as those requiring an unusually complex treatment, the insurer may allow a charge in excess of the fee screens if a medical review committee determines that the higher charge is "reasonable."

Insurance plans vary in the manner in which fee screens are constructed. For example, Level 2 screens in Blue Shield plans are often set at the 90th percentile of the area Level 1 screens, while Level 2

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[1] Medicare has adopted a different terminology, called the Level 1 screen the "customary" fee and the Level 2 screen the "prevailing" fee. Payment levels in Medicare are therefore said to be determined on a Customary, Prevailing, and Reasonable (CPR) basis. Since the UCR terminology is more common, it will be used throughout this paper.

screens in Medicare are nominally set at the 75th percentile. However, Level 2 screens in Medicare are subject to an additional constraint and are therefore frequently lower than the 75th percentile. Under a 1972 amendment to the Social Security Act, the annual rate of growth of Medicare Level 2 screens is constrained not to exceed a value determined by the Medicare Economic Index, a price index that reflects national trends in the operating expenses of physicians and earnings levels in the economy as a whole (Dutton and McMenamin, 1981). Specifically, current Level 2 screens may not exceed the product of the current value of the index (1973 = 1.00) and the 1973 Level 2 screens.

Showstack et al. (1979) report that most commercial insurance companies use a significantly modified version of the fee screen method to set payment levels for their major medical and comprehensive policies. Under the method described, no Level 1 screen is used, and Level 2 screens are generally set at the 90th percentile of the area distribution of usual fees. Also, most commercial insurance companies do not maintain separate Level 2 screens by specialty. In general, fee screens under major medical plans are less formal and less stringent than under UCR (Sloan, 1982).

2. Fee Schedules

The major alternative to UCR involves basing payment levels on a fee schedule. A fee schedule is a fixed set of dollar values that represents the insurer's maximum allowable rate of payment for a specified set of services. In some plans, the amount paid by the insurer for a covered service is the minimum of the scheduled fee and the actual charge, while in other plans the insurer simply pays the scheduled fee. Fee schedules are currently used by many Medicaid programs and by most private health insurance companies in their basic medical and surgical policies.

Fee schedules are frequently based on a relative value scale (RVS), which reflects the value of all procedures relative to a specified standard procedure. An RVS may be derived from data on actual physician charges for different procedures, or it may be specified by a committee on the basis of the time and skill required to perform different procedures.[1] Once a scale of relative values is determined, a fee schedule may be derived by applying a multiplier which translates relative value units into dollars. The multiplier may be set unilaterally by the insurer, or it may be derived through a process of negotiation. The fee schedule may be periodically updated to reflect changes in the cost of living by adjusting the multiplier. As currently used by most insurers, fee schedules are applied uniformly to all physicians with no adjustments for differences in physician characteristics such as specialty or location (Showstack et al. , 1979). However, such adjustments can be made by specifying multipliers that vary by these factors.

C. PRICING IN THE MARKET FOR PHYSICIANS' SERVICES

Assessing the impacts of different methods of setting third-party reimbursement levels requires understanding the mechanism by which prices are determined in the market for physicians' services. The question to be addressed is whether prices are determined competitively or whether physicians have sufficient market power to set prices. A related question is whether physicians engage in price discrimination, i.e. charge different

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[1] The Urban Institute, under contract to the Health Care Financing Administration, is currently completing a study of different methodologies for constructing relative value scales. When completed, the study will provide considerable evidence on the implications for price levels, and relative prices, of several methods.

fees to different groups of patients. In general, if physicians have considerable market power and engage in price discrimination, they can be much more selective in responding to alternative reimbursement policies.

1. Price Competition

Economists have often asserted that price competition among physicians is limited due to certain special characteristics of the market. Juba (1979) and Langwell and Moore (1982) have reviewed the arguments that have been advanced in the literature. Among the characteristics of the market that have been commonly cited as limiting competition are (1) restricted entry into the profession; (2) inadequate consumer information, (3) restrictions on advertising, and (4) third party payment for physician services.

One approach that has been used to evaluate the degree of price competition in the physician services market is to examine the extent of fee dispersion within a given geographic area. In general, there will be little price dispersion in a competitive market for a homogeneous product, since a seller who sets his price above the going market price will lose adequately informed buyers to competitors. However, if there are variations in the quality and other characteristics of the product, or if information is difficult or costly to obtain, some price dispersion is expected in a competitive market. Since this latter case more accurately describes the physician services market, a certain degree of variation in fees for a given service is expected even if pricing is competititve. Langwell and Moore (1982) have reviewed the existing empirical studies on fee dispersion. Such studies have generally found that the variation in fees cannot be accounted for solely by differences in the quality and other

characteristics of the services offered. The evidence therefore indicates that fees are not determined on a purely competitive basis, but that physicians have considerable market power with regard to the fees they charge.

A second approach to evaluating the competitiveness of pricing in a market is to estimate the price elasticity of the demand function facing individual firms. In a perfectly competitive market, the individual firm faces a horizontal demand function (infinitely elastic in price). In contrast, firms with monopoly power face downward sloping demand functions (finitely elastic in price). Therefore, the larger the absolute value of the price elasticity, the more competitive is the market.

Six studies have appeared in the literature which have assessed the competitiveness of the physicians' services market on the basis of empirically estimated demand functions. Three of these studies — Newhouse (1970), Feldstein (1970), and Kehrer and Knowles (1974) — have been reviewed by Juba (1979). These three studies have generally rejected the hypothesis of a competitive market, although for some model specifications, the hypothesis that physicians possess monopoly power has been rejected as well. McLean (1980) has estimated the demand function facing general practioners for followup office visits using data from a 1973 AMA survey of physicians. For two somewhat different specifications of his model, McLean reported a gross price elasticity of -2.16 and a net price elasticity of -1.75. These are reasonably small values which imply that, at least for followup office visits, general practioners have a degree of market power in setting fees.

Two recent studies by Yett et al. (1982, 1983a) have estimated the demand functions facing physicians using Blue Shield claims data for 1973-1978. The data included information on approximately 60 medical and surgical procedures, which were converted into relative value units to yield a single measure of physician output. The 1982 study used data from two Blue Shield plans, and the 1983 study extended that analysis by including a third plan. The latter study estimated the demand functions facing six samples of physicians providing UCR, indemnity, partial service, and Medicare services. The estimated gross price elasticities varied considerably across samples, ranging from -3.0 to -23.5. The authors reported that for three of the six samples, the demand functions were not statistically distinguishable from those of perfect competitors. They concluded that "physicians' markets can be categorized generally as being at the more competitive rather than the less competitive end of the spectrum of market structures" (p. 75).

The evidence reviewed leaves some doubt concerning the degree of market power possessed by physicians. While most earlier studies have concluded that physicians possess considerable market power, Yett et al. have found evidence of a more competitive market. Among the studies which have estimated the demand functions facing physicians, Yett et al. used the most recent data and most sophisticated estimation techniques. Additional work is required to determine if their results can be confirmed by other investigators and with other data. Furthermore, the market itself is undergoing important changes which are likely to increase the competitive pressures on physician prices. Alternative delivery systems such as HMOs and PPOs are becoming more prevalent, and large employers have shown an

increased determination to use their market power to reduce their health care costs. The major change in this market, however, is the recent dramatic increase in the supply of physicians which is expected to continue for another decade.

2. Price Discrimination

Another important issue regarding pricing in the physician services market concerns the question of whether physicians engage in price discrimination. In general, price discrimination requires a degree of market power, and it exists when a seller charges different prices to different buyers for a homogeneous good sold under the same conditions. Discriminating in price requires that the firm can group buyers into different classes and that buyers cannot resell the good among themselves. By charging different prices to different buyers according to their willingness to pay, the firm can increase its profits.

A classic reference in the literature on price discrimination in the physicians' services market is Kessel (1958), who described the historical development of "sliding fee scales," in which higher fees were charged to wealthier patients than to poorer patients. Kessel argued that such fee structures were evidence that organized medicine behaved as a discriminating monopolist. He further argued that the AMA was able to maintain pricing discipline among individual physicians through the threat of expulsion from local medical societies. This hypothesis was challenged by Ruffin and Leigh (1973), who instead proposed a charity-competition model to explain sliding fee scales.

Two recent studies have used insurance claims data to investigate the extent to which physicians in the 1970s engaged in price

discrimination. Holahan et al. (1979) found that individual physicians in California in 1972-1975 generally charged the same fees for Medicaid, Medicare assignment, and Medicare nonassignment patients.[1] Their data did not include information on the fees charged to privately insured and uninsured patients. Yett et al. (1983a) investigated the pricing behavior of physicians providing UCR, indemnity, partial service, and Medicare services to three Blue Shield plans in 1973-1978. They found no evidence of fee variation across private lines of business, despite large differences in allowances. However, there were statistically significant differences between the fees charged Medicare patients and privately insured patients. For most specialties, the Medicare charges were lower than the private charges. However, the reverse was true for some nonmedical and nonsurgical specialties.[2] The authors speculated that their results may indicate that physicians do not discriminate in price unless an insurance class of patients, in this case Medicare patients, constitutes a sufficiently large proportion of their revenue to justify establishing a separate set of fees.

D. EVIDENCE ON THE IMPACTS OF ALTERNATIVE METHODS OF SETTING PAYMENT LEVELS

We turn now to a review of the evidence concerning the impacts of alternative methods of setting payment levels on the performance of the

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[1] However, since physicians with higher than average fees were less willing to accept assignment, it was found that the overall average fees charged on Medicare nonassigned claims were 5 percent higher than on assigned claims and 7 percent higher than on Medicaid claims.

[2] Such behavior is illegal, since both Medicare and Medicaid require that physicians charge no more for patients covered by these programs than for their other patients.

market for physician services. Evidence will be presented to address the following questions:

- What is the impact of different methods of setting payment levels on fee inflation?
- To what extent can expenditure inflation be controlled through fee controls?
- To what extent do payment levels affect physician decisions to accept assignment or participate in public insurance programs?
- How do differentials in payment levels affect physicians' specialty and location choices?
- How do payment differentials affect the mix of services provided?

1. Fee Inflation

It is widely believed that the significant growth in both public and private health insurance coverage has been an important factor in contributing to physician fee inflation. From 1965 to 1981, the percentage of expenditures on physician services covered by third parties increased from 39 to 62 percent (Gibson and Waldo, 1982). There is both theoretical and empirical evidence to suggest that an increase in coverage will result in higher fees. Standard economic models of the physicians' services market imply that an increase in insurance coverage will lead to higher fees by increasing the demand for care (Frech and Ginsburg, 1975). The increased demand will raise fees both in a purely competitive market and in a market in which physicians have price-setting power. The positive relationship between insurance coverage and fees predicted by economic theory has been confirmed in empirical studies by Feldstein (1970), Steinwald and Sloan (1974), and Sloan (1982), although a study by Sloan (1976) obtained mixed

results. The most reliable of these studies is Sloan (1982), since it employed much better insurance data than had been available in the earlier studies. In this study, Sloan estimated that a $1.00 increase in an insurer's allowance level increases physician fees by between $0.13 and $0.35 on average.

While the evidence indicates that physicians' fees are positively related to the magnitude of insurers' allowance levels, there is also some evidence that fees may be affected by the method in which those allowance levels are determined. For example, it is commonly argued that the UCR method of setting payment levels has an inherently greater inflationary potential than the fee schedule method (Holahan, 1980 and Showstack et al., 1979). The inflationary potential of UCR results from the fact that individual physicians can increase their Level 1 screens in future years by billing at high rates in the current year. If this behavior is replicated by other physicians in the area, Level 2 screens will also be increased. Therefore, it has been argued that UCR contains incentives for physicians to pursue inflationary pricing policies in order to increase their fee screens in future years.

The incentives facing physicians to pursue inflationary pricing policies under UCR, and the subsequent impacts on patients, depend in part on whether the higher billed charges are actually collected (Holahan, 1980; Yett et al., 1983b). For example, physicians accepting assignment under Medicare can increase their billed charges without imposing higher net costs on their patients. Future fee screens can thus be increased without reducing the current demand for services. However, physicians not accepting assignment will impose higher net costs on their patients if the

higher billed charges are actually collected. Such physicians must weigh the benefits of higher future fee screen against the possible reduction in the current demand for their services.

The extent to which increases in actual current charges are translated into higher allowable fees under UCR depends on the administrative practices of the insurer. Administrative controls are available which can reduce or eliminate annual increases in allowable fees. For example, the insurer can impose limits on the extent to which fee screens are permitted to increase. Medicare currently limits the growth in Level 2 screens to a value determined by a price index that reflects national trends in the practice costs of physicians and earnings levels in the economy as a whole. A second alternative available to insurers is to reduce the percentile cutoff at which Level 2 screens are defined. Showstack et al. (1979) report that the California Medicaid program has in the past set Level 2 screens at the 60th percentile of the area distribution of Level 1 screens rather than at the 75th percentile as in Medicare. A third alternative available to insurers is to reduce the frequency of updating fee screens. As a rather extreme example of this, Holahan et al. (1979) report that between 1969 and 1975 the California Medicaid program used 1968 charge data to determine fee screens. The only updating that occurred was a 2.5 percent across-the-board increase in fee screens in 1972. This effectively transformed the reimbursement system into a fee schedule with relative payment rates determined by the 1968 fee screens. In general, when evaluating the inflationary consequences of UCR, it is important to distinguish between an unconstrained system and a system that includes a constraint such as one of those described above.

Sloan and Steinwald (1975) have described the experiences of Michigan Blue Shield when it replaced its fee schedule with an unconstrained UCR in 1968. Less than a year after the change, the allowance levels for certain frequently performed surgical procedures had increased dramatically. Among procedures for which data were available, increases ranged from 26.7 percent for a lens excision to 84.4 percent for a hemorrhoidectomy. The plan was forced to increase its premiums to cover its increased costs and, because its reserves continued to fall, it soon imposed a constraint on the rate at which fee screens were permitted to increase. The constraint was tied to the increase in the consumer price index with the medical services component removed. This constraint was effective in limiting the updating of fee screens and was credited with improving the financial position of the plan.

Huang and Koropecky (1973) evaluated the inflationary impact of UCR based on the experiences of Medicare carriers in 1967-1969. During this period, the carriers varied significantly in the manner in which allowable fees were determined. Some carriers used fee schedules, while others used UCR. Among those using UCR, there was considerable variation in the frequency of updating fee screens. Using multivariate statistical techniques, Huang and Koropecky found that rates of charge inflation were significantly higher where UCR was used than where fee schedules were used. They also found that charge inflation rates were positively related to the frequency of updating fee screens.

Lee and Hadley (1981) have studied Medicare charge rates under UCR for a sample of California physicians in 1972-1975. Using multiple regression analysis, they found that a variable measuring the lagged rate of

change of the physician's allowable fee had a negative impact on current charges. They interpreted this result as evidence for the inflationary bias of UCR, since it implies that physicians increase charges most rapidly when past increases in allowable fees have been "too low." However, Yett et al. (1983b) have noted that the result "also implies (perversely) that charge inflation can be reduced by raising physicians' fee screens."[1] They therefore questioned the generality of the test.

Yett et al. (1983b) have investigated the inflationary impact of UCR using an intertemporal model of physician pricing behavior. The model was estimated using Medicare and private UCR claims data obtained from three Blue Shield plans for the period 1973-1978. The model was consistent with two underlying hypotheses regarding physician pricing behavior which could be distinguished on the basis of statistical tests. The first hypothesis is that physicians pursue inflationary pricing behavior under UCR in order to increase future fee screens. The alternative hypothesis is that physicians pursue myopic pricing behavior under UCR, with no regard for future fee screens. The empirical results generally confirmed the first hypothesis, namely that physicians pursue inflationary pricing policies under UCR. However, the estimated model implied that the physicians in the sample were able to realize relatively small percentages of their desired increases in allowable fees. The authors speculated that this may be due to the restraining effects of Level 2 screens.

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[1] Yett et al. (1983b), p. 5

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[1] Yett et al. (1983b), p. 5

future allowances. However, insurers can limit the growth of allowances through the imposition of various administrative controls. The extent to which such controls reduce the rate of charge inflation presumably depends on the physicians' understanding of the controls and expectations regarding their permanence. If charge inflation continues while insurers restrict allowances, patients will be faced with higher net prices.

2. Fee Controls

Some evidence has appeared in the literature which suggests that simply controlling physicians fees may not be effective in restraining the rate of growth of expenditures on physicians' services. Physicians may be able to respond to such controls by increasing the quantity and complexity of services provided. In addition, they may abuse the procedure coding system by billing for more complex procedures than actually provided or by billing separately for items historically covered under a single service. If such responses are widespread, more fundamental reform of the reimbursement system may be required.

The effectiveness of fee controls as a cost containment strategy depends in part on the nature of physicians' economic motivation. Three different models have appeared in the literature to characterize physicians' behavior: profit maximization, utility maximization, and the pursuit of target income objectives. The first two of these have been applied extensively in the economics literature. The third has been advocated by some economists who believe that the more conventional economic models do not adequately describe the behavior of physicians (e.g. Evans, 1974).

The target income hypothesis is closely associated with the physician-induced demand hypothesis. Together, they assert that physicians set income targets for themselves and are able to maintain those targets by raising their fees or increasing the quantity or complexity of services provided whenever necessary. Underlying this hypothesis are the notions that the market for physicians' services is imperfectly competitive and that, since patients have imperfect knowledge of the potential benefits of different medical procedures, physicians act as their "agents" in prescribing services. Unlike the more conventional economic models, the physician-induced demand target income (PIDTI) hypothesis implies that physicians can circumvent fee controls by increasing the demand for their services.

The most direct evidence regarding the response of physicians to fee controls comes from two studies which examined the experiences of physicians during the Economic Stabilization Program (ESP) in 1971-1974.[1] Under the wage and price controls imposed by ESP, increases in physicians' billed charges were mandated to fall within specified guidelines, and strict administrative controls were applied to Medicare's allowances. In controlling billed charges, the price control authorities relied on the voluntary compliance of physicians as well as complaints from patients regarding excessive price increases (Holahan, 1980).

Holahan et al. (1979) studied the responses to ESP of over 3,600 physicians in California providing services under Medicare. The analysis was based on Medicare claims data, so information was not available on the

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[1] Holahan et al. (1979) and Yett et al. (1983a).

fees charged or services provided to privately insured or uninsured patients. The main conclusion of the study was that, while the ESP controls were effective in restraining fee inflation, they were not effective in restraining the growth in Medicare payments to sample physicians. In fact, such payments grew at a slightly higher rate during the time the controls were in effect than in the year after they were lifted. During the control years, the primary source of the growth in physician payments was a significant increase in the number of services provided. In addition, there was evidence of a shift to a higher-priced mix of services. In the year after the controls were lifted, there were significant increases in both billed charges and allowances, and the growth rate of services fell sharply.

The Holahan et al. study implies that physicians can circumvent fee controls by increasing the quantity and complexity of services provided. However, an important limitation of the study is that data were not available on the fees charged or services provided to privately insured and uninsured patients. Therefore, it is not known whether the results of the study reflect an overall increase in the quantity of services provided during ESP or a shift from non-Medicare to Medicare patients. The results of the next study reviewed lend support to the latter explanation.

Yett et al. (1983a) have studied the experiences during the ESP controls of approximately 1,000 physicians providing services to a Blue Shield plan in the East. Their analysis was based on claims data which included information on fees charged and services provided to patients covered by Medicare as well as by private UCR, indemnity, and partial service plans. In contrast to Medicare, the private UCR plan did not

impose constraints on the growth of allowances during the ESP. The study found that the ESP significantly slowed the inflation of fees charged Medicare patients but had no noticeable impact on the growth of fees charged privately insured patients. Like the previous study, Yett et al. found that physicians significantly increased the quantities of services provided to Medicare patients during the period of the controls. However, this was accompanied by a substantial decline in the quantities of services provided to privately insured patients. The authors were unable to explain this shift and judged their results to be inconclusive on the question of whether physicians can induce demand for their services during periods of fee controls. This suggests that the results of the Holahan et al. study should be interpreted with caution.

An alternative line of research on the PIDTI hypothesis that has appeared in the literature is based on the sign of the (partial) correlation between physician-population ratios and either area fee levels or per capita utilization rates. Holding other factors constant, an increase in physician supply will exert downward pressure on net physician incomes. But the PIDTI hypothesis asserts that physicians can resist that downward pressure by raising fees or inducing additional utilization of their services. Therefore, studies which have found a positive correlation between physician density and either area fee levels or per capita utilization rates have been cited as lending support to the PIDTI hypothesis. Such studies include Fuchs and Kramer (1972), Evans (1974), Davis and Reynolds (1975), Newhouse and Phelps (1976), and Fuchs (1978). However, it has been pointed out that a positive correlation between physician density and either area fee levels or per capita utilization

rates can be explained by factors other than physician-induced demand (Sloan and Feldman, 1978; Yett, 1978). For example, patients in areas of high physician density may enjoy higher quality and lower time costs. In addition, many studies have either found negative correlations between physician density and fees or utilization rates, inconclusive results, or positive results which indicate the size of the physician-induced demand effect is very small. Such studies include Steinwald and Sloan (1974), Sloan (1976, 1982), Wilensky and Rossiter (1981), Yett et al. (1982), and Rossiter and Wilensky (1984). On balance, the available evidence based on correlations between physician density and either fees or utilization rates does not provide convincing support for the PIDTI hypothesis.

An alternative test of the PIDTI hypothesis has been performed by Hay and Leahy (1982). They developed and estimated a model in which physician-induced demand is defined as services performed for a patient which the patient would refuse if he had as much information as the physician. The major finding was that medically knowledgable individuals (defined as medical professionals and their families) consume medical services at a rate as least as great as other individuals, after controlling for a variety of factors known to affect utilization. The results therefore contradict the physician-induced demand hypothesis as it was defined in the study.

Even if physicians are unable to induce additional demands for their services, they may be able to increase their revenues in periods of fee restraints by abusing the procedure coding system. For example, they may bill for a more complex procedure than actually provided (procedure inflation) or bill separately for items historically covered under a single

service (unbundling). Procedure inflation occurs, for example, when a physician provides a "brief" office visit but bills for an "intermediate" visit. An example of unbundling is charging separately for post-operative visits rather than including them in the total surgical fee. The potential for such behavior has increased in recent years as.the number of distinct services defined in procedure coding sytems has increased dramatically. For example, between 1966 and 1977 the number of distinct procedure codes defined in the Current Procedure Terminology (CPT) increased from 2,084 to 6,132 (Mitchell and Cromwell, 1984). While there is informal and anecdotal evidence to suggest that procedure inflation and unbundling are important factors contributing to the growth of expenditures on physician services, no rigorous empirical tests have been performed. It is generally difficult on the basis of claims data to determine what proportion of observed increases in service intensity and unbundling actually represent physician abuse of the coding system rather than improvements in medical care and technology.

3. Participation/Assignment

An important consideration in setting reimbursement levels under Medicare and Medicaid is the impact on physicians' willingness to participate or accept assignment. In Medicare, physicians can decide on a claim-by-claim basis whether to accept assignment.[1] By accepting assignment on a claim, the physician agrees to accept Medicare's allowable fee as payment-

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[1] Medicare has recently implemented a "participating" physician arrangement, in which physicians who participate agreee to accept assignment for all Medicare claims rather than deciding on a claim-by-claim basis.

in-full. In return, the physician submits the bill directly to the regional Medicare carrier and receives payment for Medicare's obligation from the carrier, thus eliminating the risk of payment delays or default on this portion of the bill. The physician bills the patient for the coinsurance and any outstanding deductible. A physician who chooses not to accept assignment on a claim is not required to accept Medicare's allowable fee as payment-in-full. The bill for a nonassigned claim is submitted to the patient, who is responsible for securing reimbursement from Medicare. On a nonassigned claim, the patient is financially liable for the full amount by which the physician's charge exceeds Medicare's allowable fee. Therefore, Medicare beneficiaries tend to pay higher net prices for nonassigned services than for assigned services.

Under the Medicaid program, patients generally face no out-of-pocket costs, except for token payments in some states, and physicians are required to accept the allowable fee as payment-in-full. Thus, a physician is forced to accept assignment in Medicaid if he participates at all. Medicaid reimbursement levels are required by law not to exceed the amounts paid under Medicare.

Blue Shield plans have a physician participation agreement that is analogous to Medicare's benefit assignment option. Physician's who participate agree to accept Blue Shield's allowance as payment-in-full in return for receiving payment directly from the plan. However, in contrast to Medicare, where physicians can choose to accept assignment on a claim-by-claim basis, physicians must generally agree to an all-or-nothing participation agreement in Blue Shield. Each plan is required by Blue Shield's

national association to maintain a participation rate of over 50 percent of the eligible physicians in the plan area.

Several recent studies have investigated the factors which affect physicians' decisions to participate or accept assignment in insurance plans. Sloan and Steinwald (1978) and Yett et al. (1981) have studied participation in Blue Shield plans, while Hadley (1979a) and Sloan, Cromwell, and Mitchell (1978) have studied participation in Medicaid. Several studies have investigated assignment rates in Medicare.[1] A consistent set of results has emerged from these studies. First, the studies have found that participation/assignment rates are significantly positively related to the insurer's allowance levels. Second, the studies have found that physicians with characteristics generally associated with lower quality have higher participation/assignment rates. Among the characteristics that have been used to represent lower quality levels are graduation from a foreign medical school, lack of board certification, and lower charge rates. Finally, some studies have found that market factors external to the reimbursement system can have important impacts on participation. For example, Sloan and Steinwald (1978) and Yett et al. (1981) found that physicians in high income areas were less likely to participate. In addition, most studies have found that high input prices (such as office wage rates) tend to depress participation rates.

The results of these studies indicate that attempts to limit expenditures on physician services under Medicare and Medicaid by simply reducing or restricting the growth of allowance levels are likely to have

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[1] Paringer (1980); Otelsberg et al. (1981); Mitchell and Cromwell (1982); Rice and McCall (1983); and Rodgers and Musacchio (1983).

adverse impacts on the beneficiary population. Among those impacts are higher net prices, reduced access to care, and perhaps lower quality of care.

4. Payment Differentials Among Physicians

One of the commonly cited criticisms of UCR is that it results in differential payment rates among physicians that are inequitable and create adverse incentives regarding specialty and location choices. Because they are based on actual charge data, payment rates under UCR generally tend to be much higher in urban areas than in rural areas, and they are generally higher for specialists than for general practitioners. For example, in 1984, the maximum allowance in Medicare for a lens extraction was $722 in Arkansas, $740.80 in Buffalo, New York, $1,416 in the Bronx, and $1,547 in Manhattan (U.S. Department of HHS, 1984). In addition, since a physician's Level 1 screen depends on his own past pricing behavior, payment rates can vary among physicians of the same specialty and same location. It has been argued that such variations often cannot be justified on the basis of differentials in quality of care or physician operating expenses (Roe, 1981).

Unlike UCR, in which specialty and location differentials are based on actual charge data, fee schedules give the insurer the power to determine such differentials. If the fee schedule is based on a relative value scale, such differentials can be established by specifying multipliers that vary by specialty and location. Therefore, fee schedules can be used as a mechanism for creating incentives for physicians to locate in certain areas or enter certain specialties. Of course, the success of this strategy depends on the extent to which physicians' location and

specialty choices are influenced by financial incentives. The evidence regarding the impact of economic incentives on physicians' specialty choice is limited.

Hadley (1980) has reviewed the available evidence and found that it generally indicates that income is not a significant factor in determining specialty choice. However, the evidence reviewed included only two studies that have used multivariate statistical techniques (Sloan, 1970; Hadley, 1979). While both of these studies treated specialty income as an exogenous determinant of specialty choice, Hay (1980) has estimated a model in which the two are assumed to be jointly determined by medical students' background and environment. The empirical results suggest that income has a significantly positive effect on specialty choice, although only a small number of exogenous variables were included in the model due to data limitations. Langwell (1980) examined the relationships between financial incentives and the joint specialty-location choices of physicians and found that apparent economic returns to specialty choices are, in part, a reflection of the more urban location choices of specialists. Therefore, additional research is needed before confident predictions can be made regarding the sensitivity of specialty choice to financial incentives.

There is a much larger body of research on the impact of financial incentives on physicians' location choices. Hadley (1980) has also reviewed this literature. The studies reviewed indicate that financial incentives do have in impact on location choices, and there is some evidence that general practicioners are more responsive to such incentives than specialists. Additional evidence of the responsiveness of location choices to market forces is provided by Newhouse et al. (1982), who find

that, within a given specialty, an increase in physician supply results in a diffusion of physicians to previously underserved areas. Finally, Langwell and Werner (1980) have speculated that differences in total annual hours worked may be an important factor affecting location choices. They found that the number of hours worked varied considerably across locations, with physicians of all specialties working a greater number of hours in rural counties than in urban counties.

In addition to payment differentials across specialties and locations, differentials across individual procedures may also create adverse incentives for physicians. It is widely recognized that, under the existing structure of fees, some services are more highly profitable to physicians than others (Blumberg, 1979). For example, interventive and high technology procedures are generally more profitable than careful history-taking and preventive activities. A commonly cited criticism of UCR is that it tends to reflect and reinforce such differentials (Holahan, 1980; Hadley, 1984). However, relative value scales (RVS) derived from actual charge data also tend to reflect such differentials (Showstack et al., 1979). Therefore, a fee schedule derived from such an RVS by applying a single multiplier to all procedures will preserve the underlying differentials. There is concern that these differentials create adverse incentives for physicians to bias the mix of services provided toward those that are most profitable (and not necessarily in the best interest of the patient). However, there is no empirical evidence to indicate the extent to which physicians respond to such incentives. If such responses are thought to be important, insurers using a fee schedule can encourage the

provision of certain services by applying different multipliers to those procedures.

E. CONCLUSIONS

Our review of the literature has yielded several conclusions about the impacts of alternative methods of setting third-party reimbursement levels. First, there is strong evidence that an unconstrained UCR system has serious inflationary consequences, since it encourages physicians to set higher fees in order to increase future fee screens. Second, simply restraining physicians' fees may not be effective in reducing the rate of growth of expenditures on physicians' services. In addition to the possibility that physicians can induce demand for their services, about which the evidence is mixed, physicians can abuse the procedure coding system through procedure inflation and unbundling. Third, there is strong evidence that a physician's willingness to accept assignment or participate in public insurance programs is positively related to the magnitude of the allowance level and negatively related to physician characteristics associated with high quality. This implies, for example, that a policy of controlling Medicare costs by imposing a restrictive fee schedule is likely to result in reduced access to high quality care on the part of beneficiaries. Finally, while the evidence indicates that payment differentials have some impact on physicians' location choices, there is too little evidence to draw any firm conclusions about the effects of such incentives on specialty choice. There is no evidence on the extent to which payment differentials alter the mix of services provided.

III. EVIDENCE ON ALTERNATIVE UNITS OF PAYMENT FOR PHYSICIANS' SERVICES

A. OVERVIEW

Under the current physician payment system, increases in the quantity of services provided and increases in price both contribute to the total increase in expenditures for the Medicare program. There are incentives within this system for physicians to provide more services in order to generate greater revenues, as well as to "game" the system, by breaking service units into their component parts and charging separately for each (Mitchell and Cromwell, 1984; Jencks and Dobson, 1984). When fee schedules or freezes are introduced, physicians have responded by increasing the number of services provided (Holahan et al. 1980; Yett et al. 1983). As a result of the observation that fee-for-service payment systems are susceptible to manipulation by physicians in order to generate desired levels of revenues, there has recently been discussion of alternative payment systems which center on units of payment other than a "service" (Reinhardt, 1984; Jencks and Dobson, 1984; U.S. House of Representatives, 1983). These unit of payment alternatives include:

- per case payments, linked to hospital DRGs
- per episode payments, linked to hospital DRGS but encompassing a range of ambulatory services and perhaps, including diagnoses which do not result in hospitalization
- capitation payments for Part B only
- capitation payments for Part A and Part B combined

A major motivational force stimulating considerable interest in alternative units of payment has been the implementation of DRG-based per

case payments to hospitals. While the focus of these discussions has been primarily on the feasibility of implementing a DRG-based physician payment system linked to the existing DRG-based hospital system, the discussions have ranged more broadly. Particularly when HCFA is in the process of implementing, on a full-scale basis, Medicare risk-based contracting with Health Maintenance Organizations and Competitive Medical Plans, the possibility of a capitation-based prospective payment system for physicians is being given attention (U.S. House of Representatives, 1983; Reinhardt, 1984; Jencks and Dobson, 1984; Mitchell and Cromwell, 1984).

In this chapter, we review the alternative unit of payment options being considered, and discuss the incentives created by these alternatives. The evidence of the effects of hospital prospective payment systems is then reviewed and some limited evidence on the feasibility of moving from a fee-for-service physician payment system is discussed. The existing research on the effects of alternative units of payment is then reviewed, focusing on : (1) use and costs of services; (2) quality of care; and (3) access to care.

B. DESCRIPTION OF ALTERNATIVE UNITS OF PAYMENT

The major alternative units of payment for physician services that have been described in the literature include:

- The procedure (fee-for-service)
- The medical case
- The episode of illness
- Capitation for physician services only
- Full capitation for all health services

have financial incentives to abuse the procedure coding system by billing for more complex procedures than actually provided (procedure inflation) or billing separately for items that have historically been included under a single service (unbundling). As noted in Section II, opportunities for procedure inflation and unbundling have grown as the number of distinct services defined in procedure coding systems has increased dramatically in recent years (Mitchell and Cromwell, 1984).

Under per case, per episode of illness, and capitation systems, the incentives for over-utilization of services associated with fee-for-service reimbursement are eliminated, since the physician is under financial risk for costs incurred in excess of the fixed rate of compensation. For example, under per case reimbursement, the physician receives a fixed payment for the case and thus has a strong incentive to minimize the resource cost of the treatment provided. In fact, the physician even has an incentive to skimp on resources, although this incentive will be mitigated to an extent by the physician's sense of professional ethics, the patient's evaluation of the quality of care being provided, and the threat of malpractice. In addition to the incentive to skimp on resources, physicians would also have the incentive to refuse to treat those patients for whom the expected cost of treatment exceeds the rate of reimbursement.

C. PROSPECTIVE PAYMENT SYSTEMS FOR HOSPITALS

The Social Security Amendments of 1983 mandated a major change in the method by which hospitals are reimbursed for services provided under Medicare. The Amendments called for the the replacement of the retrospective, cost-based reimbursement system previously in effect by a prospective payment system in which payment is made on a per case basis.

Under fee-for-service reimbursement, the physician receives compensation for each individual procedure performed. His gross revenue therefore depends on the total quantity of services provided and the unit prices of those services. The fee-for-service system is the predominant method of reimbursement in the U.S. and is also used in the national health insurance systems of Canada, France and West Germany (Reinhardt, 1984).

An alternative to fee-for-service reimbursement is to compensate physicians on a per case basis. Under per case reimbursement, payment for inpatient care is tied to the treatment of a certain illness rather than to the provision of specific services. Cases could be defined in terms of Diagnosis Related Groups (DRGs) similar to those currently used in Medicare Part A, and physicians would receive a fixed rate of payment for each DRG. A much broader unit of payment is capitation, in which physicians receive a specified rate of payment for agreeing to provide services to an individual over a certain period of time such as a year. Casemix distinctions could be permitted by allowing the payment rate to vary with demographic characteristics such as age and sex. The most global option of all is a system of full capitation for all health services.

The alternative units of payments described above have very different implications for the incentives facing physicians (Reinhardt, 1984; Mitchell and Cromwell, 1984). A major limitation of fee-for-service reimbursement is that physicians have clear incentives to increase the quantity of services provided, especially those at the more profitable end of the spectrum. Thus, to the extent that physicians act as "agents" for patients and can induce additional utilization of their services, fee-for-service reimbursement encourages higher costs. In addition, physicians

Under the new system, a preset flat rate is established for each of 467 Diagnosis Related Groups (DRGs), which vary according to specific diagnosis, treatment procedure, and the age and sex of the patient. This new payment system contains strong incentives for hospitals to be cost-efficient, since hospitals suffer a loss if costs exceed the DRG payment and make a profit if the reverse is true. The new payment system is being gradually phased-in over the period 1983-1986.

There is currently very little evidence on the effects of Medicare's DRG-based payment system for hospitals. The General Accounting Office (1985) has found preliminary evidence that the new system is resulting in patients being discharged after shorter lengths of stay and in a poorer state of health. The GAO report was based primarily on discussions with health care professionals and representatives of consumer advocate groups, which were held both nationally and in six communities visited in July 1984. Additional evidence will become available as Congress and HCFA continue to monitor and evaluate the performance of the new system.

The primary source of evidence on the impact of prospective payment systems for hospitals derives from a variety of demonstrations and evaluations funded by the Federal government beginning in the 1970s. The most extensive and most recent study, the National Hospital Rate-Setting Study, evaluated hospital prospective reimbursement (PR) programs in 15 states. While the PR programs included in the study were quite diverse, the objective of each was to set prospective limits either on hospitals' budgets or on the reimbursements they receive for their services. The major findings of the study have been summarized by Coelen and Yaffe

(undated). The study found that the PR programs were generally successful in reducing the rate of growth of hospital expenditures per patient day. For 8 of the 15 programs, the effects were statistically significant and large, with reductions ranging from two to five percentage points. However, the programs studied contained adverse incentives that resulted in increased lengths of stay, thereby diminishing their effectiveness in reducing the rate of increase in total expenditures. The PR programs were found to have no adverse impacts on patient outcomes, and there were no offsetting increases in nonhospital health costs. One adverse impact of the PR programs that was observed was a deterioration in the financial positions of some hospitals.

D. FEASIBILITY OF PACKAGING PHYSICIANS' SERVICE

While capitation systems are relatively simple to implement, physician payment systems which involve per case or per episode payments introduce considerable complexity into the management of the Medicare program. Reinhardt (1984) lists the technical difficulty of forcing all cases into a finite list of DRGs as a primary disadvantage of adopting a medical case-based payment system for physicians. Reinhardt points out, as does Hadley (1984), that there is no direct experience in the U.S. or elsewhere with a system of this type. This lack of prior experience and potential infeasibility of such a sytem, has prompted the Health Care Financing Administration to fund a number of studies which will address the feasibility of constructing DRGs for physicians services (Mitchell and Cromwell, 1984 and current; Mandex current), in addition to pursuing in-house research on these issues.

It is expected that these studies will shed light on the feasibiity of DRG-based physician payments on a per case or per episode basis. To date, only the first Mitchell and Cromwell study has been completed. The purpose of that study was to examine alternative methods of describing physican services performed and billed. They consider a range of alternative units of payment:

- fee-for-service
- collapsed procedure packages
- office visit packages
- special procedure packages
- ambulatory condition packages
- in-patient DRG-based condition packages

and use data from 1981, Medicare Part B claims from two states to test the feasibility and implications of each alternative unit of payment. They conclude that:

- Collapsed procedure packages are feasible and would offset the "unbundling" of procedures which has been observed under fee-for-service.
- Office visit packages and ambulatory condition packages are infeasible due to a lack of adequate casemix measures. Analyses indicate wide variation in physician charges associated with office visits and with ambulatory care for specified conditions.
- Special procedure packages and inpatient condition packages (i.e. physician DRGs) appear to be technically feasible, based on the analysis. However, substantial variation in physician charges was observed and further examination of these alternative packages was recommended.

Of particular interest for this literature review are Mitchell and Cromwell's findings on the feasibility of implementing an inpatient condition package. They examine 13 (of 467) inpatient DRGs and report that nearly as much variation appeared within each DRG package as appears across all cases. Surgical DRG packages are much less variable than medical DRG packages; for the latter, the results suggest that any payment level would under or over-pay physicians. They conclude that "DRGs as currently defined may not fully capture differences in physician resource use," and suggest that more comprehensive research is needed to evaluate the feasibility of physician DRGs.[1]

Markel (1979), who uses Pennsylvania Blue Shield Data to construct per case reimbursement (PCR) payment levels for selected diagnoses, suggests that "it is questionable whether it would ever be possible to handle all medical care claims by the PCR method." He finds that some diagnoses are not well defined, while others are suited for a variety of accepted treatment patterns--none of which can clearly be identified as "better". In addition, the payment system would have to account for complicated multiple diagnoses cases, as well as cases without definite diagnoses. He cites a feasibility study conducted by Pennsylvania Blue Shield which suggested that between 15 percent and 60 percent of all inpatient claims might be suitable for per case reimbursement. Other cases would require special handling.

These results and the experiences of other researchers who have attempted to collect and analyze data on costs and services associated with

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[1] Their current grant results will provide considerably more insight into this issue.

specific diagnoses (U.S. DHHS, 1985; Keeler, 1982; Scitovsky, 1967) suggest two major concerns with respect to feasibility of a DRG-based per case or per episode payment system for physicians:

1. Data limitation may be a serious concern in constructing profiles of use and costs by diagnoses — particularly for the elderly who often present multiple diagnoses.
2. Establishing an equitable payment level for physician services using the case or episode as the unit of payment may be very difficult.

It is anticipated that HCFA grants and contracts currently under way will contribute to resolving these issues.

E. THE EFFECTS OF ALTERNATIVE UNITS OF PAYMENT: THE EVIDENCE

The decision to retain fee-for-service as a unit of payment or to move to another unit of payment for physicians services will depend upon the final assessment of the effects of such a move on all the affected parties: Medicare beneficiaries; physicians; and the Medicare program itself. Of particular concern are effects related to:

- use and costs of services
- quality of care
- access to care

In this section, we review the existing evidence on units of payment and associated impacts. As will be noted throughout the discussion, the fact that there has been very limited experience with physician payment systems based on cases or episodes of illness implies that there is little direct evidence which can be used to assess these alternatives.

1. Use and Costs of Care

There is considerable evidence that fee-for-service based payment systems create incentives for physicians to provide more, rather than fewer services. To the extent that physicians have some ability to create or induce demand for their services, the quantity of services used will be greater under a fee-for-service system than under a capitated prospective payment system.[1] In turn, total expenditures will rise, even in the absence of an increased number of beneficiaries and price inflation. In addition, as Mitchell and Cromwell (1984) point out, physicians face incentives to proliferate procedures upon which fee-for-service payments are based--in general, separate components of a single procedure will be billed at a higher total charge than will the single procedure.

The evidence on the relationship of the existing fee-for-service Medicare service to increases in total Medicare expenditures appears relatively unambiquous. However, both Hadley (1984) and Reinhardt (1984) suggest that it is not the fee-for-service system itself, but the way the fee level is determined that causes unusually high expenditure increases. Both recommend movement to a fee schedule system, and recommend maintaining a voluntary assignment policy--with some minor adjustments to the system. Neither Hadley nor Reinhardt take into account the long-run feasibility of such a system--both base their recommendations on a supposition that the fee schedule would be kept at a level high enough to:

- o ensure that most physicians would be satisfied and would remain in the Medicare program and

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[1] A fuller discussion of the evidence on demand creation and physician incentives under fee-for-service has been provided in Section II.

- o voluntary assignment rates would not change dramatically and that, therefore, beneficiaries would not overall be worse off.

Although fee schedules have been used in other countries (and are used in some states for the Medicaid program), there is a difference in expected impacts when fee schedules apply only to one segment of the patient population than when fee schedules are mandatory on a universal basis. Access to care and out-of-pocket liability become important considerations if fee schedules are adopted for the Medicare program. In addition, it's evident that fee schedules, in the absence of a strong claims review process, do nothing to reduce physicians' incentives to increase quantity of services in order to generate greater revenues.

There is only very limited evidence on the effect of a per case or per episode payment system on use or costs of care. Markel (1979) analyzed the effects of an experiment conducted by Pennsylvania Blue Shield in the mid 1970s in which physicians were reimbursed on a per case basis for selected inpatient diagnoses. Results indicate that the primary effect of per case reimbursement is shorter lengths of inpatient stays. Physicians who receive lump sum payments are likely to release patients earlier from the hospital than under fee-for-service reimbursement. Per case reimbursement of physicians was found to have an overall negative effect on combined Blue Cross/Blue Shield expenditures, although the reduction in Blue Cross payments to hospitals was partially offset by an increase in Blue Shield payments to physicians. The latter result was due to the fact that Blue Shield's per case payment rates were designed to provide full payment for physicians' services and therefore included some protion of the out-of-pocket expenses that patients would have experienced under fee-for-service.

Although the Markel study is the only existing research on the effects of a per case reimbursement system for physicians, the results are of limited usefulness. Since hospitals and physicians self-selected into the program, it is not evident that the results reported would be reproduced if a mandatory program was put into effect. Similarly, the fact that the study was limited to only nine hospitals in Pennsylvania has implications for generalizability.

The evidence on capitation and its effects on use and costs of services is substantial. Luft (1981) and Langwell and Moore (1982) summarize this extensive body of literature and conclude that HMOs — which are capitated for health services—save money for both third party payers and enrollees. The total cost differential is apparently due to differences in utilization of medical care, particularly hospital services. Most studies suggest significant reductions in hospital admissions, but report as great or greater utilization of ambulatory care, when compared to fee-for-service experience. There is also evidence that there are differences among HMOs in the extent to which use and costs are controlled by capitated payment systems. IPA-model HMOs — which have traditionally paid physicians on a discounted fee-for-service system — have been much less successful in controlling use and costs of services. Despite this extensive body of literature, Pauly and Langwell (1982) point out that there remain significant questions about the effects of capitated payments to HMOs on use and costs of services — in particular, the presence of favorable of adverse selection into HMOs requires more attention.

Several current studies of HMOs shed additional light on the relationship between the financial arrangements in capitated systems and the use and costs of services. U.S. DHHS (1985) and Mathematica Policy Research (1984) examine, in a case study format, the organizational structure and financial arrangements within HMOs. Findings of these studies include:

- Many of the group practice HMOs studied capitate medical groups with which they contract for ambulatory services. Although few medical groups are at-risk for hospital services, bonuses linked to meeting hospital use targets may be substantial.
- Many IPA-HMOs studied pay medical groups on a capitation arrangement; a few capitate individual physicians directly. While, in the past, it was common for IPA-HMO physicians to receive fee-for-service payments, this arrangement was not frequently encountered in these studies.
- When medical groups or individual physicians are capitated, stop-loss insurance policies were usually purchased by study HMOs to limit the magnitude of financial losses for catastrophic cases.
- Medical groups which received capitation payments on behalf of HMO enrollees exhibited great diversity in methods of income distribution. It was not uncommon for medical groups to distribute income on the basis of productivity or patient visits — offsetting for member physicians the incentives created by the capitation payment.

The case study findings will be used to examine the relationship of organizational structure, financial arrangements, and use and costs of services in prepaid and fee-for-service groups. A current study (U.S. DHHS, 1985 forthcoming) is analyzing use and costs of services for six diagnoses in 14 fee-for-service and prepaid group practices and IPAs. These results may provide some preliminary indications of these

relationships. Mathematica Policy Research, under contract to HCFA, is collecting use and cost data from Medicare competition demonstration sites for a sample of Medicare beneficiaries enrolled in HMOs and competitive medical plans (CMPs). Use and costs of services by these enrollees will be compared with use and costs of services by Medicare beneficiaries who are not enrolled in these plans. Adjustments for biased selection — favorable or adverse — into HMOs will be made in order to estimate the true effects of HMOs on use and costs of services by Medicare beneficiaries. These studies, which are expected to be completed during the 1985 through 1987 period, will provide much stronger evidence upon which to assess the effects of unit of payment alternatives on use and costs of services.

2. Quality of Care

There is little evidence currently available on the effects of per case or per episode reimbursement on the quality of care provided, in part because the definition and measurement of quality of care is a highly complex undertaking in ambulatory settings. Mitchell and Cromwell (1984) speculate that skimping on services, visits and testing, may be associated with per case payment—but there is no direct evidence on this issue. Markel (1979) examined the effect of per case reimbursement on hospital length of stay, focusing in part on the possibility that incentives to reduce length of stay might lead to premature discharge that would be detrimental to patients' health. Patients were surveyed and 99 percent reported satisfaction with care received — 96 percent expressed the opinion that their length of stay was appropriate. In addition, the study included monitoring of hospital re-admission rates for the same medical condition — one indicator of possible premature discharge. Re-admission

rates under per case reimbursement were 11.8 percent within six months; under fee-for-service, re-admission rates were 16 percent for Pennsylvania Blue Shield inpatients. Consequently, in this one study, there appeared to be no evidence that quality of care — measured by appropriateness of LOS — declined under per case reimbursement.

There is a considerable body of literature dealing with quality of care under capitated systems. Luft (1982) summarizes this literature and indicates that there is no evidence that HMO enrollees receive care of lower quality — in fact, some evidence suggests that HMO enrollees receive a more appropriate mix of services, under some conditions. However, he acknowledges that there remain a variety of questions in this area which require additional research. LoGerfo et al. (1979), on the other hand, finds that HMO enrollees are less likely to have surgery — even when it would be advised by generally accepted standards — and conclude that "..... there is substantial evidence to support the contention of under-provision of surgical care in prepaid group practices as one explanation for observed differences in surgical rates" (p. 7).

It is also worthy of attention that many of the early studies of quality of care under capitated systems were of large, well established HMOs which may be most likely to exhibit a long range perspective that would lead to careful monitoring of quality of care. The experience of the California Prepaid Health Plans revealed that entrepreneurs with short time horizons and strong profit incentives may behave in ways which severely restrict both access and quality of care available to enrollees (Kimbell and Yett, 1977). In addition, new HMOs and CMPs have proliferated in the past decade. These new plans exhibit a much greater variety of organizational structures and financial arrangments than was present in

many of the older HMOs in which quality of care was studied. Study of quality of care in organizations where individual physicians are capitated seems a particularly urgent issue. Although HMOs and CMPs which capitate small medical groups and individual physicians seem aware of the potential consequences of this financial arrangement — and frequently focus utilization review on ascertaining that adequate services are being provided — (U.S. DHHS, 1985; Mathematica Policy Research, 1984) no studies of quality of care in these settings have been conducted or are currently underway.

3. Access to Care

If an alternative unit of payment is adopted by HCFA for the Medicare program, it may have implications for access to care by Medicare beneficiaries. This effect may be most pronounced if the level of per case or per capita reimbursement is set at a price that is significantly below the price available to physicians when they treat non-Medicare patients (the discussion in Section II on price determination and its effects reviews the evidence on physician behavior and access effects when price is set below market). There seems to be considerable concern, on the part of policy makers and researchers, that the Medicare program not follow in the steps of the Medicaid program, where fee schedules are set at levels sufficiently low that many physicians choose not to participate (Reinhardt, 1984; Hadley, 1984; Jencks and Dobson, 1984; Mitchell and Cromwell, 1984). Continuation of the current policy on assignment — under a per case payment system — would avoid access impacts, but could result in a more prominent two-tiered medical care system in which wealthier Medicare beneficiaries obtain, on average, higher quality care.

Under either a per case or a capitation-based physician payment system, other access problems also might appear. The ability of individual physicians or provider organizations to identify patients or cases which are going to be more or less costly to treat may cause significant access problems for patients who present particularly severe conditions or poor health status overall. The presence of "cream skimming" or favorable selection in for-profit enterprises or by HMOs has been a subject of much discussion in recent years (Langwell and Moore, 1982; Pauly and Langwell, 1982). However, no solid evidence is available to date; the planned analysis of biased selection in the Medicare and Medicaid competition demonstrations will provide this basic research — and is particularly relevant for the Medicare program where a high proportion of the population suffers from chronic conditions. If it is demonstrated that favorable selection can be achieved — at will — by providers facing fixed payment incentives, this will suggest that sicker patients will face barriers to access if a fixed payment system is adopted. Such a result will have implications for the way any Medicare fixed payment system should be structured.

F. SUMMARY AND DISCUSSION

The incentives facing physicians to maximize the quantity of services provided under a fee-for-service payment system have led to consideration of alternative units of payment: per case or per episode payments, or capitation payments for specified time periods. Limited evidence available suggests that per case or per episode payment systems constrain physician's incentives to provide maximum services; however, physicians might be able to influence the number of cases or episodes which

are treated and billed. In addition, there seems to be some evidence that the feasibility of constructing per case payment levels that are reasonable for a majority of occurrences appears low. Despite the attractiveness, in concept, of moving to a DRG-based physician payment system to parallel the existing DRG-based hospital reimbursement system under Medicare, it appears that considerably more research on the feasibility and consequences of such a move would be desirable. HCFA's current contracts and grants with Mandex and Health Economics Research, Inc. as well as internal research, seem likely to provide this background in the near future.

Movement to a capitated system under Medicare — either for Part B only or for Part A and Part B services combined — offers HCFA the possibility of prospective budgeting with certainty for covered services. However, requiring individual physicians to participate in a capitated program may be both politically and administratively infeasible. There is evidence that capitated payment systems constrain service use and costs. The effects on quality of care, however, particularly under a variety of financial arrangements between the third party payer and the provider, is not well examined. The present Medicare Competition Demonstrations Evaluation will provide considerable evidence on the effect of capitation and differing financial arrangements with providers on use and costs of services, taking into account the effects of biased selection. It is unclear, at the time of this writing, whether a clinically valid study of quality of care in the Medicare Competition Demonstrations will be conducted. This review of the literature suggests that it is an important area to examine prior to movement by HCFA to a more general capitated payment system.

IV. HISTORY AND EVIDENCE: WHO HAS BEEN PAID?

A. THE PROBLEM

In the previous two sections the evidence on price determination and unit of payment alternatives has been examined. These are the fundamental decisions which must be addressed for the Medicare program. In the decisionmaking process, administrative and feasibility issues will be given considerable attention. A major concern will be the arrangements for payment since the flow of funds through a market will affect outcomes.

The answer to the question "Who shall be paid?", is of particular importance when major reforms of the physician payment system are being considered which may involve directing payment for a group of services, provided by several physicians and/or organizational entities, to one recipient who will then disburse funds to providers. The direction of payment has the potential to affect:

- Incentives for appropriate care. The provider who receives payment for a group of services may be inclined to order fewer than optimal services in order to retain greater revenues. On the other hand, providers who do not receive direct payment may or may not be inclined to provide appropriate services depending upon the nature of contract with the payment recipient.

- Risk placement. The entity which is paid may face substantial financial risk if the payment is fixed for a specified diagnosis or time period. The determination of the type of entity which can manage financial risk under different arrangements is a critical issue for some unit of payment alternatives.

- Provider interactions. If one of a group of providers receives payment for a specified diagnosis or time period, the payment recipient may then be in a position to affect the caseloads and payment levels of other providers. Under the current fee-for-service system, patients may self-refer or change doctors at will;

> physician referral patterns at present have little relationship to relative prices among practitioners. Choosing certain payment entities may well affect many of the existing patterns of provider interactions.

Many of these potential effects may not be observable in the short run, but may become significant over time. Thus, the "Who shall be paid?" issue may have substantial implications for the administrative feasibility of any physician payment reform undertaken by HCFA.

Despite the importance of this issue, there has been little research on the subject. To examine the potential effects of alternative recipients of payment, we will review literature on historical practice, vouchers for care, assignment of benefits, and income distribution when a medical group or larger delivery organization is involved. Although much of this existing literature is not directly applicable, interpretation can provide useful information on the "Who shall be paid?" question.

B. WHO HAS BEEN PAID?

1. Traditional Insurers and Government Programs

Prior to the introduction of third party payers into the market for health services, the financial arrangements between patient and physician were direct -- the physician provided services and the patient paid the physician for those services. The development of Blue Cross and Blue Shield introduced the concept of direct payment to providers. Blue Cross pays directly to hospitals for care rendered to its membership. Blue Shield developed participating physician arrangements which involve direct payment to the physician in return for some discounts and agreement to accept the Blue Shield payment as payment-in-full for certain classes of enrollees. Non-participating physicians fill out claim forms which are

submitted by patients to Blue Shield. Blue Shield then reimburses the patient and the patient has responsibility for paying the physician directly.

Commercial insurers do not offer "participating" agreements to physicians. Instead, arrangements are similar to those in effect for Blue Shield non-participating physicians -- the insurer reimburses the patient who, in turn, is responsible for paying the physician directly. However, commercial insurers do permit enrollees to asssign benefits to the provider, i.e. authorizes the insurer to issue a check directly to the physician rather than to the enrollee. This arrangement may be most commonly used when the amount of the charges is relatively high and the patient does not want to pay the bill at the time of service and then collect from the insurance company. The advantage to the physician of this arrangement, under commercial insurance, is that the probability of receiving payment for services rendered may be somewhat higher.

Under the Medicare program, payment is made directly to patients who are responsible for paying providers directly. However, Medicare does offer an assignment option, on a claim-by-claim basis, to beneficiaries and physicians with some substantial provisions. Physicians who accept assignment for a claim agree not to bill Medicare beneficiaries for more than 20 percent of the CPR allowance for the specified procedure. In return, physicians who accept assignment are offered reduced administrative paperwork, as they may submit batches of assigned claims together. In addition, physician collection ratios may be higher on assigned claims. Patients benefit when physicians accept assignment under Medicare in two ways: (1) the coinsurance amount they must pay out of pocket may be

reduced; and (2) they do not have as much paperwork to handle for each claim.

Beginning in Fall 1984, Medicare offered a "participating" physician category. Physicians who participate in Medicare agree to accept assignment for all Medicare claims, rather than decide on a claim by claim basis to accept assignment. Medicare proposes to publish the names of all participating physicians and distribute this list to Medicare beneficiaries in each locality. In addition, as an incentive to participation, participating physicians have been offered higher fee increases at a future time when the current fee freeze is lifted. The effect of the Medicare participation option is to re-direct the flow of funds from the patient to the physician. While patients' benefit from this arrangement, there may be some instances when patient control of payment provides incentives to physicians for quality of care or amenities which would be desirable.

The only major third-party payer which pays physicians directly, in all cases, is the Medicaid program. This program for the poor uses a fee schedule to determine the payment level and prohibits physicians from billing beneficiaries for the difference between the fee schedule and their usual charge. Payment directly to the physician accomplishes two objectives: (1) it removes any reason for the physician to discuss fees or billing with the Medicaid beneficiary and (2) it assures the physician of payment without introducing the possibility that poor patients may misuse insurance payments.

2. Alternative Delivery Systems

Under fee-for-service payment arrangements, it is most common for patients to be paid by third-party payers for health care costs incurred.

When the patient relinquishes this right to receive payment to the physician, it is usually in return for some benefit -- either reduced cost-sharing or less paperwork for the patient.

The emergence of capitated delivery systems -- Health Maintenance Organizations -- has created a variety of new approaches to the "Who shall be paid?" issue. HMOs may serve as both insurer and delivery system for health services. Enrollees pay to the HMO a premium to cover their health care costs for a specified period of time and agree to obtain services only from HMO-approved providers. The HMO then contracts with providers who will serve these enrollees. The financial arrangements between the HMO insurer organization and physicians are various and, in part, depend upon state laws. A brief summary of these arrangements includes:

- Staff model HMOs are those which hire physicians on a salaried basis to provide services at HMO-owned clinic facilities. In some states, the HMO may hire and pay physicians directly. In other states, which prohibit physicians from being employed by non-physicians, a medical group is established which hires and pays physicians' salaries; this medical group then contracts with the HMO to provide physician servies to HMO enrollees, exclusively.

- Group and Network Model HMOs contract with existing fee-for-service medical groups or with new medical groups formed to provide services exclusively to HMO enrollees. The HMO pays the group a negotiated amount per enrollee. The medical group then pays physicians for the care rendered -- often on a fee-for-service or productivity-related basis. The arrangements for income distribution within medical groups are sometimes quite complex.

- IPA Model HMOs contract directly with fee-for-service solo and small group practice physicians or with an Independent Practice Association organization of practitioners to provide services to HMO enrollees. For most of the physicians, HMO enrollees constitute a relatively small fraction of their patient population. Two modes of payment have been observed most commonly in IPAs:

(1) the HMO pays a capitation amount to
individual physician for each enroll

(2) the HMO pays the IPA or the individu
fee-for-service (usually discounted)
services provided to HMO enrollees

U.S. DHHS (1985) and Mathematica Policy Re
that in most group model and in some IPA model HMO
group or individual physician receives a lump sum
ambulatory services. The medical group or individu
responsible for arranging for payment to outside s
services, and for other non-institutional services.
these studies capitate the medical group—or even i
for all institutional and ambulatory services.

C. THE EFFECTS OF PAYMENT DIRECTION: THE EVIDENCE

These alternative recipients of payment for
been identified historically: (1) the patient; (2
cian; and (3) an organization with which the physic
this section, we review the evidence on the effects
each of these alternatives.

1. Paying the Patient

Under traditional insurance programs and und
program, the patient is the most frequent recipient
service costs incurred. This is, presumably, due to
insurance contract is between the insurer and the en
the fee-for-service system, paying the patient may p
over fraudulent claims by ensuring that the patient

and is responsible for transmitting it to the provider. In addition, payment to the patient also permits the patient to control the transaction; if he/she is unhappy with the quality of care or otherwise believes that the services provided were not appropriate, he/she retains the right not to pay for these services.

Several issues of interest arise when the patient is the recipient of payments for services:

- Why do insurers pay for the patient costs incurred without requiring evidence that the patient has or will pay the physician?
- To what extent do physicians incur bad debts which are insured? What proportion of insured bad debts are not collected because the patient fails to submit the claim? Because the patient collected the insured amount but refused to pay the physician?
- Do patients use the system which directs payment to them to express dissatisfaction with care received?
- How often do patients with commercial insurance assign benefits to physicians? Why do they assign benefits? Is assignment of benefits more common for claims which are large?

The answers to these questions are of interest in determining the advantages and disadvantages of retaining the patient as the primary recipient of payments under a fee-for-service system or under selected unit of payment alternatives. Our search of the literature produced no research on these issues.

When the unit of payment changes to a fixed payment for a specified set of services over a time period, a capitation payment or a voucher for such payment may be issued to the patient. This proposal has been discussed in the literature for the Medicare program in recent years

(Enthoven, 1981; Ginsburg, 1981; Pauly and Langwell, 1982). The difference between this proposed system and the current system is that the beneficiary controls the choice of recipient of payment (e.g. an insurance company or HMO), but does not have the option of collecting the amount of the voucher and using it to pay providers directly when services are obtained. However, some proposals would permit beneficiaries to retain some cash savings if they are able to find a benefit package at a lower-than-voucher cost.

To date there is no evidence on the issue of providing a lump-sum capitation payment to beneficiaries which they can use to finance their health care requirements. Pauly and Langwell (1982) point out that the poor may prefer to under-invest in insurance, if they are allowed to retain any cash savings. Of importance, also, is the issue of adverse selection--those with above average health may elect to join a miminimum benefit group and "cash out" additional benefits, while the sicker Medicare beneficiaries may remain in the traditional Medicare system. Pauly and Langwell point out that there is not yet evidence on these issues and suggests that research would be useful on what would happen under cash redeemable vouchers.

To date there is no direct evidence on the effects of paying patients a lump sum amount for all their health care over a fixed period of time. Although some demonstrations are underway (e.g., the Medicare Competition Demonstration), none of the existing versions offer consumers "cash out" options or the right to use the cash directly to finance health services on a service-by-service basis.

2. Paying the Physician

Under the traditional insurance/fee-for-service system the physician is paid directly by third parties only when some advantage accrues to the patient or insurer. Under Blue Shield participation and Medicare assignment agreements the physician may discount his normal charges. Similarly, under Medicaid the physician receives direct payment, but usually accepts a substantial reduction in his usual charge.

While its clear that patients may assign benefits to physicians in order to lower out-of-pocket costs, to shift payment responsibility to the insurer, or to reduce the paperwork burden, why do physicians accept assignment when it usually implies a lower net revenue? Sloan et al. (1978) hypothesize that physicians will be likely to accept assignment of claims when (1) patients are poor collection risks; (2) patient collection costs are relatively high; (3) government collection costs are relatively low; and (4) the fee schedule is relatively high. They empirically examine the stated willingness of physicians to accept discounts for direct payment and find that physicians with high ratios of reduced fees and bad debts are more willing to accept discounts for direct payment. Similarly, they find that physicians with high billing costs are more willing to accept direct payment. Mitchell and Cromwell (1982) analyze factors affecting the acceptance of Medicare assignment by physicians. Their findings strongly indicate that physicians are more likely to accept assignment when the Medicare prevailing rate is higher (i.e. where the "discount" for direct payment is lower). They also find (as do Otelsberg et al., 1981) that Medicare carrier practices, including frequency of claims investigation and denial, negatively affects assignment rates. Similar findings are reported

by Rice and McCall (1983) (who also report that size of bill is positively and significantly related to acceptance of assignment), by Paringer (1980), and by Rodgers and Musacchio (1983).

The empirical evidence seems clear that direct payment to physicians reduces bad debt and collection costs in many cases and that this warrants, in the minds of many physicians, the decision to discount their usual charges in order to receive direct payment. Willingess to accept assignment, however, is substantially affected by the size of the discount required. In recent years, Medicare assignment rates have followed a u-shaped curve, falling steadily from 63.9 percent in 1971 to 53.8 percent in 1978, but then rising steadily to 55.2 percent in 1982 (Luce, 1983) and to 66 percent in late 1984, under the "participating" physician program (American Medical News, February 8, 1985). Thus, while the constraints imposed on fee increases under the Medicare program in recent years would tend to reduce assignment rates, this effect has been offset by other factors.

Under full or partial capitation systems, physicians are sometimes paid directly for all physician services required by enrollees over a specified period of time. Most commonly a medical group receives these payments and income is then distributed to group members on some basis which does not put the individual physician at direct financial risk for services provided to specific patients. However, as noted above, a few HMOs directly capitate individual physicians--most frequently for ambulatory care, including ancillary services and specialist referrals, as well as primary care. When the individual physician is directly paid under capitation systems, strong incentives are created to use resources on

behalf of capitated patients very carefully. Concerns about quality of care become substantial in HMOs having direct financial arrangments with individual physicians; in these cases, the utilization review system may be actively directed to ascertaining that adequate care is being provided. Despite the presence of stop-loss provisions which limit individual physicians liability, HMOs which directly capitate individual physicians indicate awareness of and respond to the potential incentive facing individual physicians to skimp on care when they are directly capitated (Mathematica Policy Research 1984; U.S. DHHS, 1985). However, empirical evidence on the presence and magnitude of this effect is lacking.

Overall, there is little evidence on the effects of directing payments to physicians. Although there is some indication that bad debts and collection costs may be lower when the physician is paid directly, there is only ancedotal evidence on the effects of direct payment on the physician-patient relationship, quality, and appropriateness of care.

3. Paying Medical Groups and Other Organizations

Medical group practice has grown substantially over the past decade (Saward and Gallagher, 1983; Rossiter, 1984). In 1969, one-sixth of non-federal physicians in private practice were members of groups; by 1980, over 25 percent were in medical groups (AMA, 1982). The growth of group practice arrangements changes the nature of the relationship between the physician and the payer. In solo practices, physicians receive a fee-for-service payment from third party payers or directly from patients. Consequently, incentives for productivity are straightforward. In group practices, income distribution methods may dilute these incentives. Medical groups reported in 1980 that income was distributed in several ways (AMA, 1982):

- Equal distribution - 22.8%
- Straight salary - 21.0%
- Salary plus share - 33.0%
- Expense sharing/fee-for-service - 12.5%
- Other - 10.7%

In other words, among group practice physicians only 12.5 percent receive income on a fee-for-service basis. Other group practice physicians receive income on the basis of some arrangement that may reduce the physician's incentives to produce the maximum number of services and revenues. However, the AMA income distribution categories are relatively broad and do not reflect the diversity of income distribution methods used by medical groups. A study of 14 HMO and fee-for-service medical groups finds that even when the group reports that income distribution is on the basis of salary or salary plus a share of profits, salary levels are frequently determined by the physicians' past productivity and revenue generation (U.S. DHHS, 1985 forthcoming). This methodology was observed even in group practices which received substantial amounts of capitation-based income.

Paying the medical group directly may have different implications for physician behavior than does paying the physician directly. Medical groups, as a whole, may have somewhat longer time horizons and may institute policies which dilute individual physicians incentives to generate maximum revenues or to skimp on care, depending upon the unit of payment. For capitated system alternatives, paying the medical group directly rather than capitating the individual permits a spreading of financial risk across the full group and, thus, may avoid certain undesirable outcomes with respect to quality of care and appropriateness of

treatment decisions. However, there is little evidence of the relationship between paying the medical group directly and the effects of this choice of payee on patients individual physicians and third party payers.

D. DISCUSSION

The strongest finding to emerge from our search and review of the literature on the effects of direction of payment is that very little attention has been given to this topic by past research. Although we have speculated on potential impacts of paying patients, individual physicians, and medical group organizations, the sum of our limited knowledgement in this area suggests that:

1. Patients are paid directly by third payers when the contract is only between the insurer and the patient and no contractual arrangement exists between the third party payer and the physician.

2. Physicians who receive direct payment incur fewer bad debts and lower collection ratios. As a result, physicians may be willing to discount their usual charge in order to receive direct payment. Under fee-for-service, direct payment to physicians may encourage physicians to provide appropriate levels of care even for those patients who seem least likely to be able to pay.

3. Under a capitation system, direct payment to physicians introduces a clear financial risk which creates incentives for some physicians to "skimp" on the care provided to capitated patients.

4. Medical groups which receive payment directly may have in place income distribution methodologies which dilute individual physicians incentives to generate increased patient encounters or to skimp on care, depending on the unit of service.

These very general findings provide only minimal direction for answering the question "Who Shall Be Paid" under a Medicare physician payment system reform.

V. SUMMARY

In this paper, we have reviewed the history and evidence on three broad categories of issues related to physician payment reform: (1) alternative methods of setting payment levels, (2) alternative units of payment, and (3) appropriate recipients of payment for physician services. For some of the issues examined, there was a considerable body of prior research that permitted reasonably firm conclusions to be drawn. However, for many issues, there has been little or no prior research, or the findings of previous studies have been too ambiguous or too conflicting to permit drawing any firm conclusions. In this section, we summarize what is known and what is not known about each of the issues examined in this paper, and we identify the major gaps in the existing body of literature.

A. THE EVIDENCE ON ALTERNATIVE METHODS OF SETTING PAYMENT LEVELS

As background to our review of the evidence on alternative methods of setting third-party payment levels, we examined the evidence on price competition in the market for physician services. While the evidence suggests that in the past physicians possessed considerable market power in setting fees, there is some indication that the market is becoming more competitive. The study which addressed this issue using the most recent data and most sophisticated estimation techniques (Yett et al., 1983a) found evidence of a much more competitive market than had been found in most earlier studies. Furthermore, the market itself is undergoing important changes that are expected to increase the competitive pressure on physicians' fees, such as the recent dramatic increase in the supply of physicians and increasing prevalence of alternative delivery systems such

as HMOs and PPOs. Therefore, the existing evidence leaves some doubt about the current degree of physician market power, and the issue merits continued investigation.

Our review of the evidence on alternative methods of setting third-party payment levels addressed four major questions:

- Is the UCR method of determining payments levels more inflationary than the fee schedule method?
- Do payment levels affect physicians' decisions to accept assignment or participate in public insurance programs?
- Are constraints on physician fees likely to be effective in reducing expenditure inflation?
- How do differentials in payment levels affect physicians' specialty and location choices and the mix of services provided?

On the first of these questions, the evidence is reasonably strong that an unconstrained UCR system is more inflationary than a fee schedule system, since it contains incentives for physicians to submit higher charges in order to increase future fee screens. There is also strong evidence that the willingness of physicians to accept assignment or participate in public insurance programs is positively related to the magnitude of the allowance level and negatively related to physician characteristics associated with high quality.

The evidence on the effectiveness of fee controls in reducing expenditure inflation is less clearcut. The findings of Holahan et al. (1979) indicate that the controls imposed by the Economic Stabilization Program (ESP) in 1971-1974 were not effective in restraining Medicare payments to a sample of California physicians. The constraints on fees were more than offset by an increase in the quantity and complexity of

services provided to Medicare beneficiaries. However, Yett et al. (1983a) found that for a sample of physicians providing services to a Blue Shield plan in the East, the increase in services provided to Medicare beneficiaries during ESP was partly offset by a reduction in services provided to privately insured patients. There is therefore some doubt about the effect of ESP on the growth in total payments for physician services.

The notion that physicians can circumvent fee controls is generally based either on the hypothesis that physicians will respond by inducing additional demand for their services or the hypothesis that physicians will game the reimbursement system through procedure inflation or unbundling. The available evidence provides little support for the physician-induced demand hypothesis. The most recent studies which have addressed the issue have either rejected the hypothesis, obtained inconclusive results, or found that physician-induced demand is of a sufficiently small magnitude to be ignored for most policy decisions. It is generally recognized that the opportunities for physicians to game the reimbursement system through procedure inflation and unbundling have increased dramatically in recent years due to a significant increase in the number of distinct services defined in procedure coding systems. However, there is no evidence on the extent to which physicians have taken advantage of such opportunities in the past or could be expected to do so in the future in response to fee controls.

A common criticism of UCR is that it sustains and reinforces historical differentials in payment rates that create adverse incentives for physicians with regard to specialty and location choices and the mix of services provided. While the available evidence indicates that financial

incentives do have an impact on physicians' location choices, there is too little evidence to draw any firm conclusions about the effects of such incentives on specialty choices. In addition, there is no evidence on the extent to which relative payment levels cause physicians to alter the mix of services provided.

B. THE EVIDENCE ON ALTERNATIVE UNITS OF PAYMENT FOR PHYSICIAN SERVICES

Evidence on the effects of several alternative units of payment for physician services was examined. Currently, fee-for-service is the predominant unit of payment; alternatives which have been considered include 1) per case payments, linked to hospital DRGs; 2) per episode payments; 3) capitation payments for Medicare Part B services; and 4) capitation payments for combined Medicare Part A and Part B services.

The evidence on the effects of these alternatives on use and costs of care, quality of care, and access to care is limited. While there are some indications that per case and per episode reimbursement constrain physicians incentives to provide a maximum quantity of services, the feasibility of developing such a payment system to encompass the range of DRGs appears low. More research on the feasibility and consequences of a payment system based on the case or the episode is clearly warranted, and is underway internally and through contracts and grants supported by HCFA.

There is a large body of research addressing the effects of capitation payments on use and costs of services. There is substantial evidence that under supportive administrative arrangements, capitation results in reduced use of services (particularly hospital services) and lower overall costs, although insufficient attention has been given to the issue of biased selection. In addition, this evidence is based upon

studies of the under age 65 population; the impact of capitation on use and costs of services for the Medicare population is being investigated by HCFA internally and through a current evaluation contract.

The evidence on the effects of capitation on quality of care, particularly under a variety of financial arrangments between insurers and providers, is limited and not conclusive. Similarly, the effects of capitated payment systems on access to care has not been investigated extensively. The limited research available suggests that quality and access may be comparable or superior in capitated organizations. However, the experience with the early California MediCal and Prepaid Health Plans suggests that, under some circumstances, quality and access may be seriously affected. Again, these limited number of studies are based upon the under age 65 population; research on the effects of capitation on access to and quality of care for the Medicare population is currently being conducted by HCFA.

C. THE EVIDENCE ON THE EFFECTS OF ALTERNATIVE RECIPIENTS OF PAYMENT

The feasibility and outcomes of any physician payment reform developed for the Medicare program will depend, in part, on administrative procedures. We examined in this paper the history and the evidence on the effects of alternative recipients of payment.

Historically, patients have been the recipient of payments from third party payers and have been responsible for direct payment to physicians. The physician is paid directly by the third party payer only when this arrangement yields benefits to the patient or insurer. In nearly all such instances, the physician must agree to accept a lower payment than the usual charge in order to be paid directly by an insurer. Physicians

may be willing to do this because direct payment reduces bad debts and lowers collection costs.

The evidence on the effects of selecting alternative recipients of Medicare payments is extremely limited. Under fee-for-service, directing payment to patients may permit them to maintain greater control over their transactions with health care providers; alternatively, directing payment to physicians may encourage them to provide services to patients who could otherwise be viewed as incurring potentially bad debts. Under a capitated system of payment, direct payment to physicians may introduce financial incentives to "skimp" on care. When medical groups receive direct payments from insurers or public programs, they may distribute income among member physicians in ways which create incentives to generate increased encounters or to skimp on care, depending on the unit of service.

It is clear that research on the effects of directing Medicare payments to alternatiave recipients has been very limited in scope and issues addressed. The limited amount of information available is predominately descriptive and anecdotal. More studies of this issue would be useful particularly if serious consideration is being given to implementing a per case or per episode based payment system under Medicare.

D. SUMMARY

This examination of the history and evidence on physician payment systems has suggested that, while some issues--particularly pricing alternatives--have been the subject of considerable research, there are major gaps in the available evidence in a number of areas which are of considerable importance to HCFA's deliberations on reforming the Medicare physician payment system. In this section, we have highlighted these

areas. The three concept papers which follow this discussion provide direction and guidance for future research on these topics.

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Medicare Pricing Mechanisms for Physician Services:

An Overview of Alternative Approaches

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In a perfectly competitive market, price adjusts so that the cost of producing the last unit of output equals the amount consumers are willing to pay for that unit. If the amount consumers are willing to pay exceeds the cost, output expands and price falls. Conversely, if the cost exceeds willingness to pay at the margin, output contracts and price rises until cost and willingness to pay at the margin are equalized. Given available resources and a given distribution of income, social welfare is maximized when this equality is achieved.

Ideally, an administered or regulated price should be as close as possible to the price that would result under perfect competition. In the case of medical care, and of government regulated systems of reimbursement in particular, if price is "too low," beneficiaries may have difficulties finding physicians willing to treat them. The market response to this shortage may take the form of reduced quality, such as shorter visits. Conversely, if price is "too high," doctors may compete by providing service amenities such as plusher offices or waiting rooms, even though both society and program beneficiaries (the latter, if their medical care were not subsidized) might prefer lower prices and a somewhat lower level of service amenities.

If the job of Medicare were just to set price in what would otherwise be a well-functioning competitive market, matters would be relatively simple. However, some fairly unique features of the physicians' service market greatly complicate the task of setting price. First, because care is subsidized, Medicare beneficiaries receive some care in which benefit to the patient falls short of cost. Various regulatory restraints such as

utilization review have been employed to weed out such care, with mixed results.

Second, some experts question whether patients are well-positioned to make decisions in this field and, consequently, whether physicians determine demand in a socially optimal fashion. The physician's role as both agent for the patient and supplier of care complicates the task of designing an appropriate reimbursement system (not only a fee-for-service system). To the extent that physicians influence demand, utilization will depend on the incentives facing physicians.

Third, while Medicare is not a price-setter, it is a major purchaser of physicians' services (Gibson et al., 1984). In some geographic areas and physician specialties, Medicare has considerable monopsony power, much of which has not fully been exploited (Valvona and Sloan, 1985). Excercised monopsony power results in an output level below the competitive norm. This output is too low in that consumers are willing to pay more for the last unit of output than it costs to produce it. In this context, however, use of monopsony power has one redeeming feature: it may offset overutilization that results from subsidizing the care of the elderly (Crew 1969).

Policymakers look for a pricing system that minimizes waste in all its dimensions, assures the elderly access to physicians' services of high quality, is fair to physicians, and results in budgetary savings. The optimal solution, however, will necessarily involve compromises on all fronts. Better access and more services to beneficiaries will generally come at a higher price to taxpayers. As elsewhere, waste and quality are

often not easily disentangled in medical care. One definition of equity to physicians is that they be able to earn a competitive rate of return on their investments in human and physical capital. In a competitive market, this rate of return would be adjusted up for negative features of the occupation, such as risk, and down for attractive features, such as prestige. One could observe entry patterns over time (applicants to medical schools) to determine whether the rate is correct. As a practical matter, policymakers cannot wait so long to gauge this response. In the near-term, if faced with low Medicare prices, doctors may reorient their practices to patients with other forms of reimbursement. Medicare Part B has historically favored quality of access over budgetary considerations.

In th~~e~~ is ~~following,~~ [illegible] we shall assess four options to the current system. Two are administrative approaches--charge-based fixed fees and cost-based fixed fees; and two are market oriented--competitive-bidding systems and consumer-incentive plans. Each option has advantages and disadvantages. The final choice will depend on relative weight policy makers place on use of a pricing system to achieve efficiency, distributional issues--who should bear the risk of overruns, Medicare beneficiaries or taxpayers, and political and administrative feasibility. A number of judgments that policymakers will have to make are not discussed in this paper, such as, the length and nature of a transition period.

I. CURRENT APPROACHES TO PAYING PHYSICIANS

A. A General Overview

The major methodologies for pricing physician services employed in the post-World War II period are (i) charges, (ii) fee schedules, (iii) fee screen systems such as Usual, Customary and Reasonable (UCR), (iv) payment based on a Relative Value Scale (RVS), (v) cost-based reimbursement plans, and (vi) capitated payment plans for physician services.

Charges are predominantly used in pricing those physicians' services that are not covered by third party payors. Thus, much of psychiatric, dental, obstetric and other uninsured care services are transacted at market prices (physician charges). Additionally, charges are paid for services that are insured but are provided by a physician who does not "participate" or "accept assignment." That is, if the physician does not accept the price allowed by the insurer as payment-in-full, he or she will often bill the patient for the difference between the allowed price and actual charges. In 1978, 49 percent of Medicare physician services ~~are~~ provided on a nonassigned or charge basis. (Rodgers and Musacchio, 1983).

Fee schedules are often established by traditional "fee-for-service" insurance plans, but are also used by some IPAs, PPOs, and other alternative delivery systems. Under fee schedule plans a fixed rate is specified for each physician service. This is the amount agreed to be paid by the insurance plan. Under indemnity plans the insurer agrees to pay the lesser of the fee schedule amount and the actual physician charges, so that the patient does not benefit financially by seeking out a provider with charges

below the indemnity fee schedule. Some insurance plans, including certain Medicare supplemental insurance plans, will pay the patient a flat amount for each type of service provided by the physician. For these types of policies, the patients will occasionally be reimbursed more than the actual charges, depending on the generosity of the fee schedule and the level of physician charges.

Fee screen payment systems are utilized by a large number of health care insurers, including most Blue Shield Plans, Medicare, and some Medicaid programs. The Blue Shield Usual, Customary and Reasonable (UCR) system ~~operates to~~ pays physicians an allowable amount for each type of service. This allowed rate is based on the minimum of actual charges or three screen levels; (i) Usual screen amount - the physician's usual previous charge for that procedure based on bills submitted in the past or established by physician pre-filing; (ii) the Customary screen amount - the amount customarily charged by most physicians in the local market area; and (iii) the Reasonable screen - a catch-all for procedural complexities, unusual circumstances or other exceptions that would lead the physician to be paid a different amount than is routinely allowed.

The Medicare Customary, Prevailing and Reasonable (CPR) fee screen system works exactly like the UCR system, although Medicare has historically set lower fee screen levels than have private plans under UCR. Since 1984, CPR has been superceded by a fee freeze on Medicare payments for physicians' services.

Relative value scales were popular as a method for physician service price determination, until they were viewed negatively by some antitrust lawyers in the mid-seventies (Havighurst and Kissam, 1979). An RVS is established by comparing average relative charges for each procedure and defining relative value as the ratio of average charges in a given procedure to average charges for a "numeraire" or benchmark procedure (e.g. routine office visits). Once the price of the numeraire procedure is established, all other procedure prices are set by the RVS.

Cost-based reimbursement systems for physician services have been proposed (e.g., Hsiao and Stason, 1979) and implemented in at least one Medicaid program. Costs are determined by various cost-finding methodologies. Included in cost are rates of return to physicians' investments in plant, equipment and training, as are wages of office personnel and non-labor expense, such as supplies and professional liability premiums. Since more than half of the typical physician practice expenses involve compensation of physician time, the rate of return on medical training, particularly specialty training, becomes a crucial factor in determining a cost-based reimbursement schedule for physician services.

Capitation is becoming increasingly widespread as HMOs, PPOs, and other alternative delivery systems continue to expand membership. It is almost always the case that capitation plans cover a wide spectrum of health care services, of which physician services are only a part. Sometimes, as in many IPAs, physicians are still reimbursed on a fee schedule basis while the enrollee pays on a capitation basis.

B. The Current Medicare Pricing System

The current Medicare CPR physician payment system is designed to cover the patient, after deductibles, for the major portion (80 percent) of reasonable charges for medical services provided (using market area and individual physician historical charge data as a guide to what constitutes reasonable prices). Patient premiums, as well as deductibles and coinsurance,have been implemented to reduce Medicare's federal financing burden and to reduce inessential medical service utilization. The advantage of cost-sharing provisions (e.g. coinsurance and deductibles), at least in theory, is that they increase patient cost consciousness, thereby making the demand for medical care more price elastic. There is some evidence from a national controlled health insurance experiment that cost-sharing significantly reduces health care utilization in a non-Medicare population relative to free care (Newhouse et al., 1981). The disadvantage of cost-sharing provisions is that they put more of the burden of health care financing back onto the sick patients. Cost-sharing conflicts with the primary goal of the Medicare program, or of health care insurance in general, which is risk-protection.

Cost-sharing provisions are not popular among Medicare beneficiaries, and many ~~more~~ beneficiaries have two "Medigap" supplemental insurance policies providing coverage for Medicare copayment provisions (Gabel and Monheit, 1983). According to the 1977 National Medical Care Expenditure Survey (NMCES), 67 percent of the population 65 years and older were covered by Medicare plus private insurance, while another 11 percent were covered by Medicare plus Medicaid (Cafferata 1984). Less than one-fifth of beneficiaries were covered solely by Medicare and therefore subject to the

full incentives of the cost-sharing provisions. Even this percentage probably overstates the impact of Medicare copayments, since elderly patients who perceive themselves at risk would probably be the most likely to purchase a Medigap policy. Under Section 507 of PL96-265, Medigap policies issued after July 1, 1982 were not allowed to exclude pre-existing conditions for more than six months (Cafferata 1984).

Although they provide additional risk protection, Medigap policies are socially detrimental for three reasons. First, they negate the potential utilization reduction impacts of patient cost-sharing provisions by reducing the out-of-pocket expenditures of medical care to the beneficiary to zero. Second, both Medicare and the Medigap policy administrators incur additional administrative expenses. In fact, the ratio of premiums to actuarial benefits under individual-type policies such as Medigap is substantially worse than the ratio that prevails for Medicare and group-type health insurance policies (American Council of Life Insurance, Statistical Bulletin No. 83-2). Third, for physicians not accepting assignment of Medicare claims, the Medigap policy will often provide for a higher reimbursement level than the physician would otherwise receive under Medicare CPR. This erodes Medicare's ability to constrain physicians' fees through freezes or the Medicare Economic Index. In sum, the current Medicare System in combination with Medigap coverage results in overuse of resources because the price restraint on patients has been removed, and ~~as~~ transfers are made from taxpayers and Medicare eligibles to insurance administrators.

Based on the proliferation of Medigap insurance policies, as well as the low levels of physician participation in plans such as Medicaid that pay

substantially below market prices, attempts by Medicare to affect either physician or beneficiary behavior by reducing prices may be self-defeating. While fee screens, fee schedules, cost-based reimbursement systems or capitation plans can all be established in a manner that will discount prices for physician services below the prices paid by other payers, the likely response of physicians is to reduce their rate of acceptance on assigned claims to Medicare (Yett et al., 1981), and of Medicare beneficiaries to acquire even more thorough supplemental Medigap policies that boost their coverage of physicians' services back to the market price levels.

Cafferata (1984) reported that approximately 50 percent of Medicare beneficiaries have Medigap policies which reimburse physicians at a higher price level (e.g. UCR) than does Medicare. Rice and McCall (1985), based on survey data from six states in 1982, reported a lower percentage of Medicare beneficiaries with "full price" coverage. However, they were only able to examine Medigap policy characteristics for 57 percent of their sampled population. It is apparent from the growth in Medigap insurance--currently estimated at more than $10 billion--that beneficiaries will respond by purchasing even more Medigap coverage when Medicare attempts to discount physician service prices substantially below that of other payors on a sustained basis. If this happens, Medicare will increasingly become a two-tiered system, with those who can afford supplemental insurance getting expensive health care and those unable to afford supplemental coverage having to make do with providers who are willing to treat them at lower prices and/or with the higher administrative complexity associated with such

alternate pricing schemes as physician DRGs, episode-of-care-based payments, Relative Value Scales, or cost-based physician reimbursement.

II. EVIDENCE ON PRICE SETTING FROM OTHER U.S. INDUSTRIES AND SOME FOREIGN COUNTRIES

A. Other Industries - United States

Price regulation has a long history in the United States although it has been confined to a few sectors. Some regulatory approaches may apply to setting the price for physicians' services under Medicare. In regulated industries, price has traditionally been set by public utility commissions using principles of cost-of-service rate-making. The objective of the regulation is to allow the firm to recover the economic cost of providing the service. The amount of cost to be recovered is expressed as a "revenue requirement."

The regulator determines the revenue requirement per unit of time (such as a year) as the sum of: (1) operating expense plus depreciation expense per unit of time; (2) taxes; and (3) the product of the rate base and the allowed rate of return on that rate base, defined as the original cost value of assets less accumulated depreciation. Prices are determined by dividing an anticipated volume of product into the revenue requirement. (See, for example, Gellhorn and Pierce, 1982, and Howe and Rasmussen, 1982.) When the regulated firm is a monopolist (such as a local service telephone company or an electric utility), the revenue requirement and hence price is based on firm-specific estimates of the above three variables which sum to the

revenue requirement. When a single price is set for several firms in an industry, prices are based on industry data and assumptions about the prices are needed to achieve recovery of cost for the "average" firm. When there is appreciable variation between firms in cost and in the nature of the product, prices set by the regulatory authority may often be too high or too low in relation to cost (see, for example, Joskow, 1983).

Cost-of-service rate regulators have devoted by far most of their attention to determining the rate base and the allowed return on the base. In the context of physicians' services, the rate base would include investment in plant and equipment, but more importantly, investment in medical education. If cost-of-service principles were followed, both would be valued in original cost dollars.

The underlying objective in deciding upon an allowed rate-of-return is to find the rate which would otherwise be determined in a competitive market. This rate should reflect the risk to investors. Several analytic approaches--all of which have flaws--have been developed to account for risk differences. These approaches include comparable earnings method, discounted cash flow method, and capital asset pricing model (Breyer, 1982; Pettway, 1978; Chartoff, et al., 1982). In establishing an allowed rate of return for physicians, one would not only want to consider risk, but also other reasons for compensating differentials in the return (some up and some down) such as prestige, irregular working hours, and innate talents (if skills useful to medicine could be applied to other occupations as well).

An alternative to cost-of-service regulation is historically-based price regulation. The latter approach has been applied in industries where there are large numbers of heterogeneous firms, or in economy-wide price controls such as existed during World War II, the Korean War, and under the Nixon Administration's Economic Stabilization Program (ESP). The current Medicare fee freeze is another example. Under this form of control, the firm is allowed to charge the price it charged in an unregulated base period plus, in some cases, an adjustment for inflation which may have to be cost-justified. Prices are firm-specific, rather than industry-specific.

Such regulation inevitably encounters serious problems. Prices of new products, which cannot be established from historical data, must be set. Because of changes in cost and demand, shortages and surpluses inevitably occur. Although historically-based rate making initially has the advantage of simplicity, this approach must eventually incorporate elements of cost-of-service ratemaking, such as occurred during the transition from Phase I to Phase IV of ESP.

A few examples serve to illustrate these broad regulation concepts as well as effects likely to occur in their application.

Public Utilities. Cost-of-service regulation has been most frequently applied to telecommunications and gas and electric utilities. Firms in these industries tend to be monopolists in their service areas, and production is capital-intensive. An important task of such regulation is to assure that there is a proper amount of capital invested in the industry. Setting price based on the firm's rate base so as to provide a rate of

return which is "too high" results in overinvestment in plant and equipment and, conversely, a rate which is "too low" results in too little investment (Averch and Johnson, 1962). Inadequate consideration of inflation in the price of investment goods can make underinvestment likely. (See, for example, Navarro et al., 1981.)

Although the "public utility model" is often considered useful by health policy analyst, its application to physicians' services is quite limited. Doctors are rarely monopolists. Physicians' practices are human capital and labor-intensive, not physical capital-intensive. Compared to telecommunications, gas, and electric companies, reinvestment is rather minimal. Nevertheless, by paying too much or too little for investment in medical training, an inappropriate distribution of specialists could result in the long run. Of course, historically-based relative payments may have had distortionary impacts for years.

Transportation. Prior to enactment of the Airline Deregulation Act of 1978, the now-defunct Civil Aeronautics Board (CAB) regulated price and entry in the airline industry. The CAB set prices industry-wide rather than on a firm-specific basis. The complexity of rates and costs, the constant changes in exogenous factors affecting airline profitability, and the number of competing firms precluded the use of the cost-of-service, firm-specific regulatory system that has worked with moderate success in the public utilities. Prices were established to achieve a prespecified return on the industry rate base (Civil Aeronautics Board, 1982). The CAB resolved most pricing issues by informal negotiation rather than formal administrative proceedings (Breyer, 1982). Even though price regulation was coupled with

route and entry regulation, profitability varied substantially among firms. The target rate of return (i.e., what would have occurred under perfect competition) was never achieved in a given year (Civil Aeronautics Board, 1982). In years when price was set too high, non-price competition among airline firms tended to eliminate profit.

A lesson from the airline experience is that a uniform price by no means assures a uniform return. With uniform industry-wide prices for physicians' services, there would be major physician winners and losers (Center for Health Economics Research, 1984). Given the number of physician firms, firm-specific price regulation may make even less sense for Medicare Part B than it did for the airlines. As in the airline case, setting the wrong price can lead to long-run distortions. In the airline industry, a high set price led to excess capacity (ref.). (Breyer, 1982) The same possibility exists in such fields as surgery where a high set price per procedure could lead to more entry and a low workload per doctor (unless the number of residency positions in this field is a binding constraint on entry).

Defense Contracting. While government is not a major purchaser of services from the public utilities or the airlines, there is an analogy between Medicare and defense. This is the major area in which the price paid by government has often been determined by competitive bidding. Also, as with Medicare, the government has potential monopsony power in defense (Peck and Scherer, 1962).

Competitive bidding has been used selectively in defense contracting, both before development of a major weapons system and in the production

phase after weapon development. Much of defense contracting after the initial phase uses cost-based reimbursement, even though various incentive approaches, such as cost-plus-fixed fee, are sometimes used (Peck and Scherer, 1962). Competitive bidding is not used when projects are subject to major uncertainties such as rapid obsolescence, unforeseen changes in military planning, and technical difficulties encountered in research.

Cost-based reimbursement of hospitals and retrospective charge-based reimbursement of physicians traditionally were based on the argument that patients are heterogeneous and the course of treatment in any given situation is often uncertain. This argument has and will be used against competitive bidding as a mechanism for determining price in the health field. It is interesting that although government potentially has monopsony power in defense contracting, there is a perception that contractors earn "excess" profits. For this reason, Congress established a Regulation Board to see that defense firms did not earn "excess profit" on government contracts for much of the post World War II period (Apagos and Gallway, 1970; Burns, 1972; and Scherer, 1964).

2. ~~B~~. Determination of Payment to Physicians in Some European Countries

Health systems in industrialized countries are heterogeneous, but a few features pertinent to the design of a pricing methodology for physicians' services are noteworthy. First, [illegible] European countries most rely on fixed fee schedules (Glaser, 1978; Reinhardt, 1982). The CPR (or UCR) fee screens systems is unique to the United States. The fee schedules used in other countries usually applies to a unit of service. Capitation is rare and, when it used, it is only for ambulatory rather than for physicians' services provided to

hospital inpatients. Second, fee schedules are typically negotiated between groups representing physicians and the insurance plan. In many countries with universal health insurance, the plan is a private nonprofit organization. A legal framework is established for the negotiating process, but government often is not a formal, active participant. To the extent that relative value scales are developed, the final values tend to be the result of negotiation; they are rarely developed by one side and imposed unilaterally on the other. Third, various types of data are used as input by both sides in the negotiation process. No country appears to have used cost-of-service ratemaking principles, such as those used for the U.S. public utility industries. Relative fee schedules among physicians in various fields are negotiated, but these negotiations are not based on formal analysis.

C. Economic Stabilization Program in the United States: Lessons for Medicare

The Economic Stabilization Program (ESP), instituted by the Nixon Administration and covering the period of August 1971 through April 1974, represents the most recent major attempt at price control in the United States. After a brief freeze, ESP placed controls on prices of physicians' services (and other prices) which limited the annual increase in prices to 2.5 percent. In addition, Medicare placed limits on the growth of reasonable charges. If the increase in actual fees exceeded the allowed increase in reasonable fees, the latter constraint was binding.

A comprehensive evaluation of bills of California physicians to the Medicare program during ESP by Holahan and Scanlon (1978) revealed that

while price controls were successful in controlling the rise in actual and reasonable charges per unit of service, there was an appreciable increase in the number of services billed and in the complexity of services. The consequence of this was that payments to physicians in the California sample increased markedly during ESP. Thus, by instituting controls, the Federal government won a battle, but may have lost the war of expenditure control. All of the utilization changes should not be attributed to price controls, but, since ESP was the major policy affecting physicians during the period, these results should not be dismissed either. Adding similar ~~price~~ controls to the current CPR system may yield a similar outcome.

The reasons for the utilization increase are unfortunately not well understood. There are several alternative explanations that are not mutually exclusive. First, imposing a price limit on a firm with monopoly power will increase output and reduce profit if the limit is set above marginal cost. ESP was basically a price freeze. Prices were not reduced. However, as demand for physicians' services increased during this period (Sloan and Schwartz, 1983), price would have ordinarily risen. So with controls, the price was lower than it otherwise would have been. If the limit is set below marginal cost, output will fall and there will be excess demand for the firm's product. Degradation of quality may eventually occur as a way of closing the excess demand gap. For example, physicians may reduce mean visit length and ask the patient to return. This phenomenon would appear to the billing system as an increase in quantity. In fact, Holahan and Scanlon found that the number of office visits for established Medicare patients tended to rise more than the number of other types of procedures during ESP. Considering the length of time ESP was in effect and

the stringency of the controls, it is unlikely that prices were forced below marginal cost in many cases. It is also unlikely that the current Medicare fee freeze has yet had this effect. However, imposing limits above marginal cost can be expected to boost physicians' output according to a standard model of monopolist behavior, and this response is well worth monitoring.

Second, placing a lid on office visit fees encourages doctors to substitute diagnostic tests for their own time so long as the price of such tests is sufficient to cover their marginal costs (Munch, 1980). In many cases, such tests are performed in the doctor's own office.

Third, ESP may have caused physicians to look for ways to increase profit. One way would be to relabel the services provided. For example, a brief visit would be relabeled an intermediate length visit, without the actual length of the visit changing. One objection to this type of reasoning is that doctors probably maximized reimbursement before ESP was implemented. One way to rescue this explanation is that time spent figuring out ways to beat the reimbursement system is costly to the physician and he will game the system only if the potential return covers this cost. Before ESP, when fee increases were not limited by an external authority, the prospective return to the physician from time invested in gaming the system was insufficient.

Fourth, doctors may induce demand for their care. When price is held down, quantity rises to enable them to continue to achieve their target incomes. The supplier-induced demand model has a number of important conceptual weaknesses (Sweeney, 1981). One way to "fix" the model, however,

is to argue that doctors have some unexploited market power which is not ordinarily exercised because doctors value honesty and professional ethics. However, when confronted with ESP, a constraint that they may consider unfair, they value honesty less and set output nearer to its profit-maximizing level.

Fifth, Holahan and Scanlon only presented price and output data for Medicare and Medicaid. If physicians shift output from private to government-insured patients, it would appear that ESP controls increased output while they only affected output shares by payer category. Although such shifts may undoubtedly occur if prices paid by public insurers rise relative to those in private markets, there is no reason to suppose that relative prices changed in this way during ESP.

The message from the ESP experience to Medicare's current price-setting deliberations is that price controls imposed in a fee-for-service context may raise the quantity of physicians' services provided. More information on why this is so is needed to improve the ability of government to design a pricing and payment system.

III. APPROACHES TO DETERMINING PAYMENT

A. Continue the controlled CPR System

Medicare's reimbursement system for physicians' services is based on a variant of the Blue Shield's UCR approach which is termed "customary, prevailing, and reasonable" (CPR). Two major types of controls have been implemented since the program's enactment in the mid-1960s. First, a

provision of the Social Security Amendments of 1972 (actually implemented in 1976) requires that updates of prevailing charges not exceed the rate of increase in Medicare's Economic Index, an input price index for physicians' practices. To the extent that customary fees rise faster than the Index, the prevailing fee screen becomes binding in an increasing proportion of cases, and eventually Medicare physician reimbursement will converge to a fixed fee system.

Second, the Deficit Reduction Act of 1984 froze the amount physicians can charge for services rendered between July 1, 1984 and September 30, 1985. This fee freeze provision was recently extended by Congress. A "participating" physician may bill the Medicare carrier any amount during the freeze period, but the total amount which such a physician can collect for a service is limited to the "reasonable charge" as determined by Medicare reimbursement principles.

One option is to maintain the existing hybrid CPR system. Although the current freeze will probably be lifted, ~~in late 1986,~~ there will undoubtedly be fiscal pressures for freezes at later dates. Therefore, it is appropriate to consider Medicare's current price-setting approach as one plausible candidate.

Maintaining the current method has two advantages. First, by varying payment rates by physician, the program at least in theory recognizes differences in procedure-specific case mixes treated, as well as in quality, and in practice cost. There is considerable variation in prices of labor and nonlabor inputs as well as in the price of physician time. If Medicare

pays the "going rate," it is more likely to obtain physicians' services on behalf of persons entitled to receive such care. Second, maintaining the status quo would be potentially less disruptive than instituting changes, at least in the short term.

However, this approach also has important shortcomings. First, controlled CPR has given physicians unmistakable incentives to game the system. A young physician who unlike his older counterpart may not be limited by a history of low fees has an incentive to set high fees when first establishing practice. The price of physicians' services is constant or even declines with on-the-job experience. It is possible that ~~relatively~~ younger physicians are often better, and there is some empirical evidence, albeit not conclusive, that this is so (Payne, et al., 1981; Palmer and Reilly, 1979). The current Medicare fee freeze gives physicians an inducement to raise fees once controls are lifted, in case controls be imposed once again. Of course, any subsidy will raise fees so long as physician fees are not controlled by an external authority. In deciding on the desirability of alternative options, it is necessary to compare potential benefits as well as adverse side effects attributable to each option.

The types of gaming just described introduce important inequities. Most observers would agree that it is unjust to penalize doctors who for one or another reason are not as adept in gaming the system. Also, the CPR system assumes that past fee differentials, both geographic and among specialties, are correct and therefore current reimbursement should be based on them. This assumption is now being debated within the medical profession

itself. Although empirical evidence is lacking on this score, it is possible that existing differentials have had important allocative effects as well. For example, the current structure of fees may encourage the use of surgical and ancillary procedures.

Whether CPR is controlled or uncontrolled, the payer delegates the decisions about relative fees to the market. This might be appropriate if Medicare were a minor purchaser. But For some high-frequency procedures, Medicare accounts for about three-quarters of total purchases (Valvona and Sloan, 1985) and hardly can be viewed as a "price-taker." Also, third party payment, effectively places a floor on fees with the consequence that there is downward rigidity ~~in fees~~. Thus, while in a normally functioning market the price of a new service would fall as the number of units produced increases, prices of new medical services in the current system typically do not fall. Since the decline in price reflects lower cost associated with increased volume, the downward rigidity of Medicare prices tends to make provision of recently diffused services highly profitable. Under a fixed fee system, there ~~is~~ could be a mechanism for imitating the fall in prices that would accompany technology diffusion in a competitive market.

Since Medicare is a major payer, other payers are affected to the extent that CPR distorts fees. Also, some payers look to Medicare for leadership. So long as Medicare retains CPR, it may be difficult for other payers to change their own payment methodology.

B. Administrative Approaches

Charge-Based Fixed Fee ~~System~~

A charge-based fixed fee system would be based on mean charge data as reported to Medicare carriers. The fixed fees could be modified in cases in which a particular fee derived from actual charges was judged to be inappropriate. This approach could be adapted to virtually any payment unit. For example, if episode of illness were the unit, charges could be aggregated by episode and means calculated. Adaptations could be based on cost studies, professional judgment (using the Delphi method, for example), negotiation, or a combination of these approaches.

The calculations would be affected according to whether specialty and geographic differences were recognized. Several factual and normative issues are involved in the decision to recognize specialty and geography. Although it is desirable that services be performed by generalist physicians when they can be performed adequately, in practice, specialists may treat more severely ill patients, a likelihood which a single fee per unit would not recognize. Geographic differences are often not recognized by government; the Federal tax code is an example. Since Medicare has recognized differences in factor prices paid by hospitals, it is likely there would be geographic differentials under a fixed fee system for physicians. This does not mean that current geographic fee differentials are appropriate. Some experts have claimed that the current urban-rural differential is far greater than can be justified on the basis of differences in input prices (see Burney, et al., 1979). In the early phases of implementation of Medicare prospective payment for hospitals, there has

been some dispute about what the proper index for geographic differences in wage rates should look like.

A fixed fee system avoids many of the deficiencies of controlled CPR. Medicare reimbursement rates would be fully exogenous to individual physicians, thus avoiding ~~the~~ incentives ~~doctors have~~ to set high fees under CPR. To the extent that the schedule for particular procedures appears to be either inequitable or inefficient, it can be adjusted. Program administrators can at least make a rudimentary attempt to approximate the fall in price that would accompany diffusion of a new technology in a competitive market. The schedule would be based on charges from an historical base period so that physicians would not have an incentive to raise fees in anticipation of a fixed-fee system.

Fixed fees would not be exogenous to physicians collectively. Physicians would pressure government from time to time for increases in fixed fee schedules. By contrast, consumers-taxpayers are a diffuse group, and may not be well positioned to effectively oppose physicians' lobbies.

Another advantage of basing fixed fees on historical charges is that it is not necessary to fully understand why fee differentials exist. Differentials presumably reflect time required of physicians and other practice personnel to perform the procedure, the value of time of such persons, as well as complexity and risk. It may be possible to relate the existing charge structure for some procedures to some external measure of resource use. For example, Hughes et al. (1972) found that California Relative Value Scale values for frequently performed surgical procedures and

the mean amount of time patients spent in the operating room were highly correlated. If this result is generalizable, it may be possible to pattern changes in fees of new procedures after changes in operating room time.

The main criticism of charge-based fixed fees is that insurance may have seriously distorted the existing charge structure so that observed differentials no longer reflect the factors just noted. Two procedures of equal complexity and which command the same use of resources may be priced very differently. However, while the argument has some conceptual merit, there is no empirical evidence that insurance has in fact distorted fee structure across procedures (Sloan, 1982; Juba, 1984). Some of the differentials in the U.S. attributable to insurance are also found in countries with widely different physician payment systems (Reinhardt, 1984).

A charge-based fixed fee system would tend to be more disruptive to physicians than continuing controlled CPR. However, a recent study by Juba and Sulvetta (1984) which examined distributional consequences of implementing a fee schedule based on average charges submitted to the Medicare program, concluded that a fee schedule based on average charges would not have major redistributive effects among physicians. This conclusion would not hold if there were large-scale adjustments to absolute and relative fees derived from the charge data or if the fee-for-service system were dropped. A package approach such as DRGs would have major redistributive effects even if the price were based on past charges (Center for Health Economics Research, 1984). A transition period during which physicians were paid a mixture of controlled CPR and charge-based fixed fees could be implemented to ease the transition to the new system.

• Cost-Based Fixed Fee System

Fixed fees may be established from cost data, which is the approach used in many other industries subject to price regulation. The regulator sets prices to permit full recovery of economic cost, which includes operating cost and a normal return on the firm's investment base. The number of firms in health care is far too large to permit cost-justified, firm-specific prices. Rather, prices might be established for the industry as a whole or for individuals parts thereof (such as specialty and region). There are several variants of this method.

The most direct application of traditional cost-of-service rate making principles starts with the notion that prices are set to yield gross revenues to the physician sufficient to yield his/her annual revenue requirement (RR). Stated formally,

$$RR = OCT + (RB)(r)$$

where OCT = operating costs plus taxes,

RB = rate base and

r = allowed rate of return on rate base.

The operating cost (i.e., the cost of nonphysician labor and "current" nonlabor inputs) would be defined at a full capacity level. The necessary information is readily obtainable from surveys of physician practices. There are two components of the rate base: physician's investment in professional education, and the physician's investment in plant and equipment. The ~~former~~ latter is also obtainable from surveys of physicians, and the value of investments in training can be computed from

data available from several secondary ~~services.~~ sources. It is accepted practice to compute the rate base (RB) in original cost dollars, that is, the amount the regulated firm paid for its assets (Howe and Rasmussen, 1982). The return on the rate base is compensation for training and other investments.

There are several methods for computing an allowed rate of return. These include the comparable earnings method, discounted cash flow method, Capital Asset Pricing Model, and the Arbitrage Pricing Model. All seek to account for variations in risk. In this context, "r" should reflect all reasons for compensating wage differentials, only one of which is risk. Some of the others include length and variability of working hours, job stress, degree of professional independence, and prestige. Some are reasons for positive and others for negative wage differentials. The return represents compensation to RB, irrespective of the combination of debt and equity which was used to finance RB. ~~In this sense,~~ For this reason a physician with a large educational debt should receive no more than one who financed his/her education from an equity source.

Actual real rates of return to medical education for 1983 were high in comparison to other investments (e.g., twice the rate of return on an investment in male college education in 1975; see Freeman, 1976) and have been surprisingly stable for almost two decades (Burstein and Cromwell, 1985). If this type of cost-finding method were used, it would be necessary to devote considerable attention to determination of r for physicians overall and by specialty. If RB is valued in original cost dollars, r should be in nominal rather than real terms. It would also be necessary to forecast future inflation ~~for the coming year~~ before r could be set.

Once an r were selected, Medicare would compute its share (s) of RR. Estimates of s are published annually by HCFA (see, for example, Gibson et al., 1984). Specialty-specific estimates of s could be developed from surveys of physicians.

Medicare's shares are themselves determined by the generosity of its payment policy. For example, if HCFA doubled its payment for prostatectomies, the value of s for urologists would increase, both as a direct consequence of the fee change and indirectly to the extent urologists would want to perform more of these operations. Hence, it might be necessary for HCFA to set ceilings on s if this approach were implemented.

The final step would involve computation of prices to yield sRR for the "average" practice. To illustrate, suppose one began with general/family practice and recognized a given annual return for this field plus an assumed rate of inflation, to yield r. HCFA could take the frequency distribution of services by procedure from Medicare claims data, apply a cost-based or charge-based relative value scale to solve for the numeraire or reference price which yields sRR for physicians in general/family practice.

There would be a number of complex rate base issues. The base should reflect investments in plant, equipment, and specialized coursework needed to learn how to perform new technologies. If physicians were paid separately from hospitals, it would be necessary to split the fee, depending on who undertook the investment. This type of cost allocation problem frequently arises in public utility regulation. However, a regulator has

jurisdiction over a relatively small number of public utilities; HCFA has to deal with hundreds of thousands of physicians.

Hsiao and Stason (1979) developed and implemented a cost-based relative value scale for medical and surgical services. The relative values embodied information on physician time required to perform each procedure, complexity of each, and associated overhead (nonphysician) expense. Physician time estimates were obtained from several secondary sources, and some plausible assumptions were made in cases where the requisite time data were unavailable. They defined complexity to include:

(1) the intensity of physical and mental effort involved including the risk of intraoperative complications;

(2) the diagnostic skills and operative judgments required to choose the appropriate therapeutic procedure; and

(3) the technical skills required to perform the procedure. (Hsiao and Stason, 1979, p. 25).

Procedure-specific estimates were obtained by conducting a small survey of physicians in the Boston area. The range of relative complexities varied widely across specialties. For this reason, the authors normalized the values so as to arrive at an identical range across specialties. To place a value on physician time spent per procedure, the authors computed the specialist-general practitioner income differential required to yield a given rate of return to specialty training (alternatively, 7 and 10 percent). Overhead expense (office payroll, space, malpractice premiums, drugs, and medical supplies, depreciation on medical equipment) was calculated as a fraction of gross revenue by specialty; the fraction for

each specialty was expressed as a ratio of the corresponding fraction for general practitioners.

Two methods were used to obtain relative values. With the "multiplicative model," the value (RV) for each procedure was:

$$RV = (T)(C)(OC)(O) \qquad (2),$$

where T = physician time for the procedure;
C = standardized relative value given procedure complexity;
OC = index of income increment needed to yield a given rate of return to specialty training; and
O = factor for differential overhead expense.

As an alternative to (2), different weights to T and C were obtained by applying principal component analysis to the time and complexity variables.

Hsaio and Steson found only moderate agreement between their cost-based relative values and relative values largely based on charges (California Relative Value Scale) and between their scale and Medicare prevailing charges. The most notable difference was that their cost-based scale gave a higher value to office visits relative to surgical procedures than did the charge-based measures. One major reason for the difference is that the Hsiao-Stason scale was based on a common rate of return to training, but is a good ~~version~~ reason to assume appreciable differences in actual rates of return by specialty based on length of training, resident stipends and similar factors (American Medical Association, 1984).

Hadley and Berenson (1984) proposed a three-step process for constructing a Medicare fee schedule. In the first stage, a relative cost scale would be devised. One way to accomplish this would be to implement

the Hsiao-Stason approach, but, for various reasons, Hadley and Berenson rejected the Hsiao-Stason approach in favor of a method that would estimate procedure-specific relative costs from a combination of charge data and physicians' judgments about profitability. Surveys of physicians would be used to assess the relationship between mean charges and "zero profit charges." The charge estimates would be modified up or down, using the information on zero-profit charges. To achieve comparability across physician respondents, physicians would be asked to gauge relative full economic cost of each procedure for physician practices operating at full capacity. Some micro-costing of the type proposed by Hsiao-Stason would also be undertaken at this stage.

In the second step, Hadley and Berenson recommended that HCFA (or presumably any other payer) convert relative costs to relative values by modifying the relationship among procedures to reflect several factors, including appropriateness of various procedures for its beneficiaries. In step three, fixed fee schedules would be derived by establishing the price of the numeraire or reference service (or services). There might be several numeraires if, for example, it were desired to pay more for preventive and office-based procedures and less for hospital-oriented procedures. Furthermore, the authors suggested that HCFA might decide there are too many of one type of specialist and too few of another and vary the numeraire prices accordingly. Another possibility which was mentioned but not explored is to leave determination of the numeraire price up to competitive bidding.

The chief advantage of cost-based fee schedules is that they force policymakers to find out why fee differentials exist and, if policymakers wish to use the payment system to foster certain objectives, ~~there is~~ a [illegible] ~~mechanism for them to use.~~ [illegible] these objectives.

Several of the deficiencies of cost-of-service ratemaking as applied to other sectors apply in this context as well. First, if the regulator or payer sets the allowed rate of return above the firm's cost of capital, there will be overinvestment. Conversely, setting price to yield a return below the cost of capital will lead to underinvestment. Determination of the "right" allowed rate of return is always more of art than a science because it is difficult to know how much to pay to compensate for variations in risk. In this application, it would be necessary to account for several compensating factors in addition to risk. Second, since cost-of-service ratemaking generally takes place in the absence of competition, there is no good yardstick with which to measure whether operating cost is minimal for the assumed quantity level. The same criticism pertains to a passthrough of nonphysician expense when solving for the revenue requirement. Third, the cost-of-service formulation is not explicit about quality. Although price can be set by an authority external to the industry, quality is typically much more difficult to monitor and control. If cost-of-service calculations led to a much higher set of prices than now paid by Medicare, physicians may be expected to compete for Medicare beneficiaries by improving their service, for example, shorter waits to appointments, less office waiting time, and longer visits. The opposite may occur if prices were set much lower. Some of the adjustments proposed by Hadley and Berenson are designed to avoid such unintended side effects. Fourth, especially if physicians and

hospitals are paid separately, there would be tremendous difficulties in determining the appropriate rate bases.

A cost-based fixed fee system is inherently much more complex than one based on charges, and many important details are lacking in formulations developed to date. For instance, precisely how should an allowed rate of return on the rate base be determined? This is no minor matter since over half of gross revenue of physicians' practices now accrues to physician labor. How should relative rates of return among specialties be set? Under these circumstances, how useful are physicians' estimates of economic cost? To the extent that the payment system should be designed to foster efficiency, what input combinations should be assumed for purpose of computing revenue requirements? And what implications do particular combinations have for the quality of care available to Medicare beneficiaries? On what basis would HCFA decide that there are too many practitioners of one type and too few of another? Over what time span would the changed incentives be expected to have their desired effects?

C. Market-Oriented Approaches

Competitive Bidding Models

An attractive physician reimbursement alternative, at least in theory, is to allocate Medicare-purchased services across physicians on the basis of some sort of competitive bidding mechanism. The key advantage of a bidding system, if optimally devised and implemented, is that the purchaser (i.e., Medicare) need not know anything about the underlying costs and/or the production process to be able to purchase physician services at prices which

will tend towards efficient economic costs of production. Since physician practices cannot accept less than their efficient production costs and stay in business in the long run, and since society will be opposed to paying physicians more than these economic costs, this efficiency property is clearly desirable to the extent that competitive bidding does not harm other social goals.

Since it is discussed in the paper by ~~Drs.~~ Wilensky and Rossiter, in this place we set aside the issue of what physician services would be included in the units to be bid. It could range from individual services to a full coverage capitation arrangement. Bidding systems may be more appropriate for some physician or health care services than others. For example, some services tend to be more homogeneous than others and for them, price and quality information on the part of beneficiaries, providers, and the government is relatively good.

Bidding schemes are often observed in markets where a single seller (or single buyer) is offering to sell (or buy) a commodity or service for which there are a number of potential bidders. The seller (buyer) may know relatively little about the true value of the item in question, presumably much less than the various bidders. Bidding schemes are thus utilized by the federal government in the sales of oil exploration leasing rights, (Ramsey 1980) and financial obligations such as Treasury bills (Friedman, 1963, Smith, 1966, Smith, 1967). They are also used by a variety of government authorities for the purchase of goods and services, primarily big-ticket items such as roads, sewer systems, and volume purchasing agreements. The construction industry transacts much of its business

through bidding arrangements; primarily sealed bids, often by invitation of the purchaser.

Bidding schemes have been advocated on the basis of two separate and somewhat contradictory arguments. The first is that auction markets enable the government to minimize costs. The second is that auctions can ensure efficient transactions prices.

Some claim that by establishing a price discriminating auction for the item in question, the government as seller can maximize revenues by selling to the highest bidder until that demand is satisfied, and then to the next highest bidder, and so on. Similarly, the government as purchaser could minimize its costs by dealing first with the lowest bidder then the next lowest bidder, etc. This argument, originally offered in defense of Treasury Department price discriminating auctions for federal debt obligations (e.g., Brimmer 1962), has been criticized on two grounds.

First, it may not make sense for the government to practice price discrimination when the private sector is expressly prohibited from doing so by the Clayton Act. The arguments against exercise of monopoly power are based on its presumed economic inefficiency, rather than simply the distribution of consumer or producer surplus. These arguments are just as valid when government is the monopoly as when a private firm engages in monopoly pricing.

Second, there is theoretical and empirical evidence that discriminating auctions actually provide the monopoly seller (buyer) with lower total

revenue (higher total expenditures) than would competitive single price auctions (e.g. Smith 1966, 1967). This is because the optimal bid affects the probability of winning in a single-price auction but not the amount paid, while in a discriminatory auction there is an incentive for bidders to game their bids to account for both the value and probability of winning. That is, if one were submitting Medicare bids to the government in a discriminatory auction, one would be likely to raise one's bid if it appeared that a slightly higher bid would still fall below the cutoff price. This incentive would tend to raise all bids in a discriminatory auction. However, in a single price auction each bidder would bid their lowest, since all bids would end up transacting at the same market clearing price anyway. There would be no 'penalty' for bidding too low in a single price auction.

The view that competitive bidding leads to efficient pricing has been analyzed theoretically in a number of articles. Wilson (1977) showed in the context of a sealed-tender auction where a seller offers to sell an item at highest bid that the maximum bid will converge to the true value of the item, even if neither the seller nor the bidders know the true value. This is a purely theoretical result. It assumes that the item's true value is a fixed parameter of each person's stochastic behavioral response function. This result requires bidders to have independent and identically distributed sample information about the value of the item. It is also only valid as the number of bidders increases towards infinity. While the Wilson result has been somewhat generalized (Milgom, 1979), Oren and Williams (1975) showed a somewhat conflicting result in the context of a multiple tract oil exploration leasing auction. In their example, profit-maximizing bidders will always bid less than the estimated value of the object being auctioned.

Theoretical models of bidding behavior are mathematically complex and do not provide much insight into policy for real bidding situations. They often require non-testable assumptions about the degree of risk averseness of buyers and sellers. They require assumptions about strategy learning and about what constitutes an equilibrium that are somewhat arbitrary. Finally, they require assumptions about the distribution of information in the bidding participant population which may not be applicable for some bidding markets.

An alternative to purely theoretical analysis of bidding market properties pioneered by Smith (1967, 1982) involves analysis of outcome data based on experimental bidding situations where study subjects are provided hypothetical bidding rules, initial resources, and market contexts. The key question in reviewing experimental bidding findings, however, relates to whether study subjects in an artificial experiment actually behave as buyers and sellers would in a real world bidding situation. Market idiosyncrasies as well as individual personalities and strategies are likely to lead to results that differ from those predicted by experimental analyses.

For these reasons it is not possible to predict in advance, either from theoretical or experimental evidence, how well a specific bidding scheme will work in a particular economic context. Bidding mechanisms are expensive to initiate and, if used for Medicare physicians' services, would require physicians or physician groups with winning bids to provide a sufficient volume of services to the Medicare program to justify the bidding. Bidding mechanisms would also incur coordination and other administrative costs associated with writing Medicare service contracts with

enough providers to ensure access and full service coverage to the Medicare population in each market area. Those submitting bids to a Medicare auction process would have to engage in substantial and costly research to determine precisely what their lowest bids would be, how many services they would be willing to provide, and what the likely bidding strategies of their competitors would look like. Thus, both sides of the market would have administrative incentives encouraging concentration and merger among the provider entities bidding to provide Medicare services. This is already seen in the Arizona Health Care Cost Containment System (AHCCCS) Medicaid demonstration, where the state has indicated a preference for full service bids, necessitating larger and more integrated delivery systems than partial service bids (Christianson, et al., 1984). Similar patterns of concentration are also observed in California where the MediCal exclusive hospital contracting arrangements have led some hospitals without contracts to merge with hospitals that have received them, thus further concentrating the market power on the seller's side for future rounds of negotiation.

It is likely that bidding mechanisms for physicians' services would accelerate the process of medical care provider corporatization and would make it more difficult for individual physicians to care for Medicare patients unless they belong to some sort of larger provider entity. A possibly undesirable offshoot of this could be the development of provider entities specializing in Medicare contracting, particularly if this leads to substantial quality differentials between Medicare-contracting physician organizations and mainstream medical care. This trend would be enhanced over time as winning contractors gained greater experience with the process while losing bidders would be frozen out until the next round of bids, at

time, other patient service amenities or quality variation. If it is deemed socially beneficial for the Medicare purchasing agency to impose specific patient service convenience or amenity restrictions on Medicare eligibles then bidding mechanisms will provide an expedient way to carry this out. If, however, the Medicare purchasing agency intends to fully consult the preferences of beneficiaries to determine whether submitted bid rankings would be altered after consideration of nonprice service characteristics, it will require a substantial amount of information, thus negating the primary rationale for competitive bidding.

An additional administrative problem that will exacerbate the Medicare purchasing agency information requirements relates to the allocation of Medicare patients to bidder provider entities. Lock-in systems of care appear to be politically acceptable when the recipient is poor, but there is likely to be much more political opposition to limiting the middle class's (the majority of Medicare beneficiaries) freedom of provider choice.

Unless patient freedom of choice is totally prohibited, the Medicare purchasing agency will have to accurately predict how many Medicare eligibles will sign up with each provider entity for each type of physician services and develop plan switching rules to equilibrate supply and demand. Since it is unlikely that providers will sign service price contracts without some sort of minimum and maximum quantity guarantees, the financial penalties to the Medicare purchasing agency for inaccurately determining where Medicare patients actually sign up for services could be quite substantial. The information requirements for solving this sort of resource allocation problem differ little from those necessary for operating a

purchaser, Medicare, is only the agent for a large and highly differentiated Medicare population, rather than a direct consumer. Second, the item for bid--a physician service--is difficult if not impossible to prespecify, is produced and consumed in very large quantities, and is as individual~~istic~~ as each doctor-patient encounter. Third, the high costs of bid development by provider entities and the information and coordination complexities inherent in attempting to match Medicare patients with winning bidders will both hasten existing trends towards provider merger, patient care specialization and vertical integration. Fourth, there are the usual problems of preferred risk selection when the provider is placed at risk, but competitive-bidding may exacerbate these problems. Fifth, even if the long-run outcome from competitive bidding is desirable, society may not be able to stand the rough and tumble process (firms failing) that characterizes market adjustment in a competitive industry. Still, bidding arrangements might work will for certain specialized and well-defined services, such as End Stage Renal Disease treatments, durable medical equipment, clinical laboratory services, or even some high volume surgical services, such as cataract surgery. Bidding mechanisms are likely to be increasingly utilized in any case at the local level in response to larger cost containment pressures, as hospitals, HMOs and third party payors increase their efforts to obtain medical goods and services at minimum cost.

Modified Voucher Models

Physician and patient cost consciousness need not be linked as rigidly to copayments as it is under the Medicare program or other insurance plans with traditional coinsurance and/or deductible provisions. Patient financial incentives to encourage prudent health care utilization can be

designed as positive rewards for choosing less expensive health care options instead of negative deductible or copayment penalties for choosing more expensive health care. A modified voucher approach, hereafter called a provider coordinated Consumer Incentive Plan or CIP, incorporates patient sharing of the savings from use of less expensive providers. It can be designed for any definition of Medicare physician services bundles including procedures as currently defined under fee-for-service reimbursement systems, physician DRG 'bundles' oriented around episodes of care, or total capitation plans.

This plan has a number of similarities to the Consumer Choice Health Plan described by Enthoven (1983), but does not require the formal establishment of "Health Plans" and is thus easier to implement and administer. The pricing system would be a modification of the approach described ~~in~~ by Hay (1983). For each unit of service, a target price would be established based on review of recent charge distributions. For example, the median or some other mid-range percentile of the existing Medicare charge distribution could be taken as the target price. If the patient elected to receive services from a physician with charges about the target price, the patient would be liable for a coinsurance portion, ranging from zero to 100 percent, on the difference between physician actual charges and the target price. If the patient elected to receive services from a physician with charges below the target price, the patient would receive a rebate, ranging from zero to 100 percent on the difference between the target price and physician actual charges.

voucher-like system would revive competitive market pressures by increasing these net price differentials. To the extent that physician service price variation is justified by plusher offices or other service amenities which fall under the general classification of service quality variation, beneficiaries would be asked to balance marginal quality variation against the full marginal price of that quality variation.

The CIP also creates ~~dynam~~ic incentives for market efficiency which distinguish it from CPR, prospective payment or cost-reimbursement systems. To the extent that patients under CIP switch from high to low cost providers, high cost health care providers will face increasing market pressure to either reduce prices or justify higher prices to their patients. The CIP does not require an extensive regulatory apparatus to set prices, find~~s~~ & costs or run auctions. ~~By~~ If CIP can return~~ing~~ control of resource allocation to impersonal market forces, ~~the CIP~~ it may makes it more difficult to identify a focal point for political lobbying efforts, Providers are then freed to devote more resources to patient care.

Depending on how service packages are defined, it would be important to establish CIP target price and rebate percentages at levels so that the time, travel and psychic costs to the patient of obtaining 'inessential' services from low priced providers would not be outweighed by the rebate. Setting aside physician ethical considerations, while it is unlikely that a patient would submit to unnecessary surgery to obtain a small cash payment, he or she might very well be enticed to visit the physician to complain about vague stomach pains in response to a sufficiently large rebate. One safeguard against this would be to set the target price of such service

packages at or below the charges of the minimum price provider. This would expose beneficiaries to some additional risk and barriers to access for persons with certain categories of illness, but this type of CIP would provide better access than a standard deductible, since the patient would be covered for some portion of the cost of care, even on the first visit. As long as the target price is pegged to a mid-range percentile in the charge distribution, extensive utilization of low-price providers would tend to drive rebates down over time in any case, resulting in savings to the Medicare program.

[illegible]

A plan of this type ~~could be designed~~ to create incentives for total expenditure ~~containment~~ rather than just price containment if CIP ~~were~~ [illegible] combined with a simplified case management or provider coordination arrangement. Each Medicare beneficiary would designate a particular primary care physician or primary care provider entity as his or her primary care physician, subject to mutual consent by both parties. Medicare could compute the average (annual) Medicare expenditures for each designated primary care physician by totalling all medical claims (Part A and Part B) for all beneficiaries who have designated that physician as their primary care doctor. Primary care physicians, specialists, hospitals, and all other providers would be reimbursed by Medicare fully on the basis of charges, possibly subject to some maximum caps, for all eligible services provided to beneficiaries. If the average expenditures for a given primary care physician's patients exceeded some target rate (e.g., the median) for all primary care provider entities, then that physician's patients would pay a (monthly) premium surcharge based on the difference between the target rate and that physician's actual average Medicare expenditures per eligible. If

the primary care physician was able to achieve average Medicare expenditures per patient that were less than the target rate, his patients would receive a (monthly) premium rebate. This plan has certain similarities to a proposal called Physician-Based Group Insurance (Evans, 1980).

Primary care physicians could practice in a variety of styles. Some could let their patients see any specialist or go to any hospital they wished. Others might be fairly aggressive about not allowing their patients to access certain types of higher-priced specialists or facilities. Those Medicare patients who perceived higher priced care to be worth more would be willing to pay the premium surcharges associated with higher priced primary care physicians. Those patients who did not would prefer the rebates. Beneficiaries who did not designate any primary care physician would default into a group that would probably have high premium surcharges due to the lack of any cost-effective patient care management.

To reduce market friction, patients would be allowed to change primary care provider designation relatively frequently, possibly every three to six months, without provider preauthorization. However, once a primary care provider entity had accepted a beneficiary's designation as primary care physician, the provider would not be able to drop this patient without informed consent from the patient. This would reduce adverse selection against sicker patients, particularly against those in the last year of life who would tend to be high cost.

Secondary and tertiary health care providers would have strong incentives to establish close organizational relationships with primary care

providers who have been designated by beneficiaries irrespective of whether these physicians receive direct coordination-of-care fees from Medicare. The types of arrangements between primary care providers and their Medicare patients would be determined in the marketplace. They could range from formal HMO-type contracts, possibly restricting a patient's free choice of provider and charging nominal fees for each inpatient or outpatient visit, to a totally informal relationship between a solo-practice family doctor and his or her elderly patient.

These types of market-oriented approaches to cost-containment have been met with skepticism by many in the health care provider community. Several arguments can be presented in opposition to voucher-type schemes. First, if the consumer incentives only apply to prices and not quantities as well, physicians may well offset price reductions through provision of increased quantity of services. This weakness however applies equally for all physician pricing schemes, be they officially administered or competitive. The Provider Coordination/Consumer Incentive Plan avoids this problem because it makes rebate and surcharge incentives a function of total expenditures rather than just physician prices.

Second, if the CIP applies only to prices, Medigap policies could still be purchased that would weaken the incentives to obtain lower cost care. For example, a Medigap plan might offer to cover all copayments above the set target prices. This would allow patients to access any physician without financial penalty, which in turn would drive up target prices and lead to excessive utilization. Here again however, any physician pricing plan is just as open to some form of Medigap supplementation if either

beneficiaries are the "at-risk" HMO demonstrations (Eggers and Prihoda, 1982).

D. Negotiated Fee Schedules

Compared to the exercise of unilateral monopoly power by a single party, the result of bilateral negotiations can yield output levels closer to the competitive norm. However, determination of final outcomes from negotiation depend on the relative strengths of the two parties and the ability of each to execute various strategic moves (see, for example, Fleisher and Kniesner, 1984), and therefore, the precise price-quantity outcome to result from bargaining cannot be predicted from a theoretical argument. In addition to the efficiency effects, introducing bilateral negotiation in a situation in which the buyer (in this case HCFA), has exercised some monopsony power, could redistribute income from the buyer to the seller (in this case from nonbeneficiaries to physicians). Monopsony tends to hurt beneficiaries by reducing their access to physicians' services. Any efficiency gains from negotiations should be weighed against the redistributional effects which many observers would judge to be adverse. Also, a strong physician monopoly (i.e. a union) could form to overpower HCFA's monopsony position.

When considering negotiation as a price setting option, several key questions must be addressed. First, what issues would be subject to negotiation? Possibilities include fee levels, relative values, conditions under which physicians agree to accept Medicare program fees as payment in

full, billing arrangements, payment for newly-developed procedures, and procedures for utilization review.

Second, who would the negotiating parties be? Possibilities on the buyers side include HCFA itself, regional offices of HCFA, Medicare carriers, an organization or organizations specifically established to conduct negotiations on behalf of Medicare, and/or organizations specially created by legislation to negotiate for physicians. On the seller side, the negotiating party may be the American Medical Association, state medical associations, major specialty societies, or a group especially formed and designated to negotiate on behalf of physicians. Obviously, outcomes and the nature of the negotiations themselves could be very different, depending on the negotiating parties selected. Negotiation may be multitiered as in West Germany, with a national contract negotiated at the federal level and with details worked out at the regional and/or state levels. If there were to be multilevel negotiation, a mechanism for resolving differences in settlements would have to be established.

Third, would the settlement terms be mandatory or advisory? If terms were merely advisory, the main reasons for negotiating would be to provide a formal mechanism for transmitting information from the seller side, to provide a public forum at which the seller's case can be presented, and hopefully to avoid costly litigation over Federal payment decisions.

Fourth, what constraints would be imposed on the negotiations representing buyers if negotiation terms are mandatory? Negotiations are likely to be acrimonious if firm restraints, such as an inflexible budget

ceiling, are established as a precondition to negotiation, especially if non-fee dimensions of practice are excluded from the process.

Fifth, how would negotiations between physicians and Medicare affect negotiation between physicians' associations and other third party payers? Would physicians' associations be given an antitrust exemption to negotiate with individual private insurers and/or with associations representing the latter's interests?

Sixth, should Federal and state antitrust rules be relaxed to allow negotiation ~~to occur~~? The Federal Trade Commission obtained several consent decrees during the 1970s which forbade medical societies from developing and disseminating relative value scales (Pfizenmayer, 1982). In a recent important decision against the U.S. Department of Justice, the American Society of Anesthesiologists won the right to continue to use its scale (Pfizenmayer, 1982). The argument that RVSs are anticompetitive has been based on the notion that the RVS facilitates joint fee-setting by doctors. A plausible theoretical case can be made that use of RVS should lower rather than raise fees because RVS facilitates comparison-shopping. Eisenberg (1980) found that use of RVS had no effect on fee levels, but not surprisingly, did reduce fee dispersion.

IV. FURTHER CONSIDERATIONS

A. Geographic Differentials

Geographic differentials in the price of physicians' services arise for several reasons: input price variations, differences in physician practice

style, and patient characteristics, variation in pricing practices attributable to differing market structures and other factors, and differences in quality-amenity of the services provided. The substantial geographic variation in price has been documented elsewhere (see, for example, Center for Health Economics Research, 1984; and U.S. Health Care Financing Administration, 1978).

At least in its original form, Medicare CPR recognized geographic fee differences of almost any amount. Such a policy is at one end of the spectrum; at the other, Federal statutory tax rates are the same everywhere in the U.S. The new Medicare prospective payment system for hospitals adjusts for input price differences and, at least temporarily for regional variation in treatment style. However, they do not adjust for quality-amenity differences and to only a very limited degree for patient characteristics.

The case for recognizing differences in price based on input price differences is probably the strongest. Yet a policy of paying more for beneficiaries living in high cost areas may well generate a cross-subsidy to such persons. The Part B premium is uniform across areas. Perhaps, if price is to vary to reflect input price differences, Part B premiums should vary geographically as well.

Price variation because of differences in practice style mainly arises when the payment unit is for a unit other than for an individual procedure. In principle, it does not seem proper to recognize such regional differences for pricing purposes. In practice, however, neglecting such variations

could be disruptive, at least in the short run, and a transition mechanism to a pricing approach which does not recognize geographic differences would probably be required. Similarly, paying extra for higher quality-amenities may promote beneficiary access, especially on the part of beneficiaries who live near doctors who provide such care. However, since these beneficiaries are not taxed differently, such a policy may be widely seen as being "inequitable." This has not been an issue to date because, with CPR, it is not necessary to examine the reason for geographic differences in price.

B. Specialty Differentials

The main reason for policy concern about specialty differences in price is that the nomenclature used to describe the services performed by the physician may be too broad. For example, is the content of an office visit by a general practitioner sufficiently similar on average to an office visit of the same name by an internist for them both to be properly identified by the same code? If the content is largely the same, there would be no good reason for a differential. If content differs, some would readily agree to pay different prices. Others would inquire about the appropriate care level. That is, to continue the example, could the GP have done as well for the patient as the internist? Even if the answer is "yes," some would still justify the visit to the internist if he/she was the patient's usual source of care.

Assuming there are generalist-specialist differences in visit content not adequately reflected in the nomenclature, who should pay for the difference? The answer to this question depends on the standard set by society as "minimally adequate" for Medicare beneficiaries. To date, Medicare's philosophy has been that beneficiaries should have access to

nearly every physician, and the CPR system was designed to guarantee such access by paying higher priced physicians more. Society may no longer be willing to make such cross-subsidies.

C. Hospital-Based Physicians

Several types of specialists devote most of their professional time to hospital-based activity and in fact may be exclusively located there. These include the "traditional" hospital-based physician specialties (HBP), in anesthesiology, pathology, and radiology, as well as other hospital-oriented specialties which have experienced unusually high rates of growth in recent years--cardiology and emergency medicine (Steinwald, 1980).

Hospital-based physicians are unique in several ways which make it appropriate to consider separate payment policies for such physicians. Patients rarely select HBPs. Rather choice of a HBP is made by another physician and/or the hospital. Many hospitals have exclusive dealing arrangements with HBP groups. In such cases, patients and/or their referring physicians have very limited choice of HBP, once the selection of the hospital has been made. Exclusive dealing can be justified in terms of guaranteeing coverage at the hospital, the cost of transactions between the hospital and HBPs, and scale economies. Because patients may not distinguish between the hospital and HBPs who work there, some argue that it is essential that the hospital pay particular attention to the quality of its HBPs, for reputational reasons and to guard against malpractice suits. Because many HBP bills are small but numerous, separate hospital and physician payment is often impractical. Incomes of several types of HBPs are now high (relative to other specialties) and these differentials appear

to be growing (American Medical Association, 1984; Sloan, 1984). Finally, under the DRG system, HBP-related expense that was once reimbursable on a reasonable cost basis under Medicare Part A is now included in the DRG-operating cost price and is determined prospectively. Thus, more than for other specialties, some HBP compensation is now being paid by Medicare prospectively. Both HBPs and hospitals currently have a clear incentive to minimize payments made on this basis.

The history of Medicare prepayment policies as they pertain to HBPs is both long and complex, and there is no need to introduce substantial detail on these rules here (see Steinwald, 1980; Commerce Clearinghouse, 1985). Moreover, many issues go far beyond setting the Medicare price for such services, but

Several points about HBPs and Medicare pricing are especially noteworthy. First, many of the objections to competitive-bidding to physicians in general do not apply to HBPs. A hospital could request bids from HBP groups. Presumably the hospital is an informed buyer. Also, HBP coverage at the hospital is an issue that has traditionally been discussed between hospitals and HBP groups. Contracts may be awarded by the hospital to one or several competing HBP groups. Medicare could specify the process for such bidding and pay HBP directly. Alternatively, Medicare could pay the hospital a fixed amount, such as a flat percentage add-on per DRG or ancillary services. Then, the hospital would want to obtain HBP services at the lowest quality-adjusted price.

An alternative to bidding to set the Medicare price for HBP services is negotiation. In this context, there are natural negotiating partners, namely the hospital and groups providing HBP services. One option is to have periodic bidding, say once every five years with the terms of the contract in the interim determined through negotiation. In fact, since conditions for both bidding and negotiation are relatively favorable in markets for HBP services, this area may be the place for negotiation to start. Defects in the process may be much more easily eliminated in these fields for which some of the important objections to bidding and/or negotiation do not apply. If these alternative price-setting mechanisms prove to be inappropriate for HBPs, it is very unlikely these approaches would prove workable for other types of physician services.

Periodic bidding would overcome an important antitrust objection to exclusive dealing agreements between hospitals and HBP groups, namely that such agreements lessen competition among HBPs and possibly among hospitals as well within a market area. A generous contract may in fact be sufficiently interesting to HBP groups around the country to induce them to establish practice in a hospital in the event the group won the bid. In this sense, the market for HBP services would be enlarged to a national market, and the policy change would be procompetitive.

Even if Medicare were to foster competition/negotiation among HBPs, there is a question about what specific act.ons it should take to encourage such activity. Medicare could be active and develop specific rules and procedures which affected parties must follow, or it could just create an incentive for hospitals to be cost conscious about HBP services. The most

direct way to accomplish the latter would be to fold HBP services into the hospital DRG price, an option that would almost certainly be ~~approved~~ opposed by associations representing HBPs.

If the reason for change is to narrow earnings differences between HBPs and other types of physicians, it is important to recognize that the DRG program already implemented is probably having this effect. Formerly, hospitals made profits by providing ancillary services. Under the new system, the situation has been reversed since the DRG price is invariant with respect to the number of ancillary services provided (unless the case becomes an outlier).

C. New Technology

Technological change in medicine has been proceeding at an unprecedented rate in recent years. The major fraction of new development has been "product" rather than "process" oriented. There are many aspects to the design of a reimbursement system as it pertains to technological change. The discussion here is limited to price-setting.

Preliminary to setting the price, the procedure must be described, a code assigned, and a decision must be made whether to cover it at all. Coding systems understandably lag behind technological changes. Medicare payment system reformers would do well to reexamine existing mechanisms for describing, coding, and deciding on covering procedures. A "minimal" approach would focus on describing and coding with relatively little emphasis on coverage. A "maximal" approach would include evaluation of

randomized clinical trials prior to granting coverage (Smits and Watson, 1984).

A major issue in pricing is that proficiency results from learning by doing. Normally, prices of new technologies fall as diffusion occurs. However, with controlled CPR or fixed fees, there is no natural process through which such price reductions will occur. With charge-based fixed fees, one could vary a producer's relative value if correlates of relative values for existing procedures can be found, e.g., operating room time. Second, HCFA could sponsor private surveys of physicians, periodically asking them to compare time and complexity of new procedures with ones that have been well diffused for years. A third (and more complex) approach would be work sampling. Fourth, HCFA could negotiate with specialty groups about payment for new technologies. A technology might be considered "new" for some fixed time period, say eight or ten years.

At the other end of the spectrum are very old technologies now out of favor or even discredited. HCFA might reduce prices of some procedures in this category to discourage their use.

It is essential that packaging and pricing activities be combined. Under the current DRG system, small changes in procedure coding can mean classification to a new DRG and a very different price (Simborg, 1981, and Smits and Watson, 1984). If such price differences are maintained, major shifts in procedure mix are likely to occur.

~~V. CONCLUSION - Steve will write a page~~

V. SUMMARY

At a time when budgetary considerations are foremost in the minds of policy makers in Washington and Medicare appears to be in a state of organizational flux, it is important that all options ~~are~~ considered if Medicare physician payment is to be restructured. This paper ~~attempts to~~ provide a framework to analyze the options for restructuring dimension of physician payment: price setting. Beginning with a description of the objectives of a pricing mechanism for physician services, the paper next discusses current pricing mechanisms, then attempts to glean some lessons both from the experience of other countries and other U.S. industries with price regulation.

Once this background is established, some options for Medicare ~~are~~ explored. These options include continuing the controlled CPR System, administrative approaches (charge based fixed fees and cost based fixed fees), market oriented approaches (competitive bidding models and modified voucher models), and negotiated fee schedules. Finally, some further considerations, such as geographic differentials and specialty differences are discussed.

The approach taken in this discussion, as ~~is~~ with the ~~case with~~ accompanying papers, is that of the economist. The intended contribution, therefore, is a coherent ordering of options for Medicare pricing mechanisms for physician services, and a discussion of their respective trade-offs.

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PHYSICIAN PAYMENT REFORM:

WHO SHALL BE PAID?

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I. INTRODUCTION

Proposals to change the unit of payment for physician care, and to move away from the current arrangement of payment for individual services to individual physicians, raise an important new question: what entity should receive these new forms of payment? If payment is made on a per case or per capita basis, there will often be more than one physician involved in "producing" the unit for which payment is made; who should receive the payment from Medicare? This paper will outline the economic and organizational considerations involved in answering this question. As with most market phenomena, tradeoffs between different objectives will have to be faced. We will indicate what those tradeoffs are, and offer some suggestions about the appropriate ways in which they might be made.

A. RELATIONSHIP TO OTHER CONCEPTUAL PAPERS

The question of the identity of the payee arises because the new definitions of output discussed in the other conceptual papers will often involve more than one physician in their production, and yet only a single payment is to be made. Whether the unit of output is the inpatient case, the illness episode, or the capitated enrollee, the payment will at base be a single amount, and some policy will have to be chosen either for dividing that amount or for choosing to whom it should be paid as a lump sum. Obviously the choice of such a "payment entity" or entities will depend critically on the definition of output. If Medicare retains fee-for-service and only adjusts absolute and relative price levels, there is no problem. But for any other definition of output, some payment entity must be chosen

and some method developed for choosing the level of total payment for that output (and possibly for its parts as well). The identity of the payee will affect the choice of a price determination method; likewise, the choice of a unit of output may well depend not just on theoretical attractiveness but also on whether an entity can be created to produce that output and accept payment for it.

B. ISSUES TO BE DISCUSSED

When several physicians cooperate in the production of a unit of output and share in the revenues received for it, it is useful (although, as we shall see, not absolutely necessary) to think in terms of an "organization" or "firm" which will receive payment. This organization could take a number of forms in terms of size, administrative structure, method of distributing revenues and costs, and so on. Because the organization will therefore have to perform a number of different functions (or serve a number of different objectives), there is the possibility for tradeoffs and conflicts. In particular, there will need to be tradeoffs between risk spreading, financial incentives for productivity, productive efficiency itself, administrative costs, and ease of transition from current arrangements. In this paper we will consider those tradeoffs, both in terms of what entity might eventually be ideal and in terms of a process of transition from current organizational forms to new and more appropriate ones.

EFFICIENCY MISMATCH: In many cases, the organization which receives payment will also be the firm which produces medical services. (Here we will define a firm as an entity which uses direct managerial control rather

than market transactions for purposes of coordination.) Virtually all of the new units of output being considered are justified in some way or other by the notion of putting the physician at greater risk for the cost of his own and other services he advises the patient to use. Greater risk, whatever its desirable incentive properties, does not come without cost in the world of risk averse individuals. In particular, physicians may find it desirable if not essential to consider risk-spreading capabilities in choosing organizational forms. In general, the larger the organization the better its ability to spread risk, to self-insure. However, if there are decreasing returns to scale in production, there may well be a mismatch between the size needed to produce at minimum cost and the size appropriate for spreading of risk.

We will consider below some evidence that, for some kinds of physicians' services, for some types of physicians, and for some organizational forms there may indeed by diseconomies of scale beyond some point. Consequently, there may need to be a tradeoff.

MORAL HAZARD: As noted above, putting physicians at risk has some desirable incentive properties, but risk averse physicians also want to avoid risk. To the extent that they do so by various form of market and internal-organizational insurance and risk spreading, desirable incentives for productive efficiency are going to be diluted, at least at the level of the individual agent. As a consequence, physician behavior will change. This impact of risk spreading on behavior is commonly called "moral hazard"; while the term is usually applied in health care to patient behavior, it is appropriate as well for analyzing incentives within organizations.

Even where there are no diseconomies arising from the production process itself, moral hazard can lead to higher costs as more individual physician agents share risk and therefore suffer diluted incentives. The larger the number of physician participants in an HMO or medical group, for example, the smaller the direct financial incentive of sharing net income on each physician's behavior. To be sure, organizations typically counteract, or attempt to counteract, moral hazard by instituting administrative rules and procedures. Nevertheless, we need to recognize that such rules may be only partially effective, especially in the case of medical services where production is non-routine and effort and productivity are difficult to monitor.

ADMINISTRATIVE HASSLE: Administrative rules exist in every organization. Adding a new basis for payment can add a new task to administer--for example, a hospital medical staff would have the new problem of dividing up the payment among different physicians, or of reconciling total payments with end-of-period profits or losses. Here again, some organizational entities may be more adept at both paperwork and conflict minimization than others. The clinical department in a non-salaried teaching hospital may have an easy time dividing revenues, while a similar department in a community hospital may be riven with conflict and commotion if physicians have to agree on each other's incomes.

TRANSITIONAL DIFFICULTIES: In many cases, there currently exists no organizational entity to which most physicians belong to which per-case or per-capita payments could be made. Creating such an entity--even an ideal version of it--will require time and expense. Uwe Reinhardt has called the

change to per-case payment "revolutionary" (U.S. Congress, 1984). Revolutions, especially benign ones, tend to take time and to require advance warning, advance planning, and some compromise.

PROVIDER VS. PATIENT INTERESTS: It is not easy to design a payment mechanism with perfect incentives. Any mechanism which puts the provider at increased financial risk carries the danger that providers may underprovide care relative to what the patient would have wanted if properly informed and if charged the full marginal cost of care. This kind of "underprovision" is, of course, avoided by the fee-for-service system only at the risk of overprovision. Nevertheless, the second-best ideal arrangement may be better achieved in some organizational structures than in others. It may in fact be desirable to have individual physician incentives which offer some financial encouragement to the over provision of care in order to counteract group incentives which push in the direction of underprovision.

C. OVERVIEW OF THIS PAPER

In order to offer some perspective on these tradeoffs, we will first consider how the question of payment entity is settled in other industries, both those that sell directly to the public and those that serve governments. The conceptual tradeoffs just outlined for three alternative definitions of output: the case, the illness episode (briefly), and capitation.

For each of these output definitions, we will outline the conceptual and empirical evidence bearing on several payment options. The basic

principles that will guide our discussion are two common sense postulates--that other things equal, one wants the payment entity to correspond with the entity that is efficient for other purposes, and that no single organizational arrangement is likely to be "best" for all physicians in all markets at all points in time, so that some flexibility should be built in.

II. HISTORICAL AND CONCEPTUAL FRAMEWORK

A. INTRODUCTION

Physicians have in the United States traditionally billed on a fee-for-service basis. Even when the physician providing services is a member of a group practice, possibly even salaried, the payment for service is generally still made to or on behalf of the individual physician, and for the individual service he renders. Medicare's payment procedure, especially the separation into Part A and Part B, further strengthened this system; in some cases physician employees of the hospital were required to bill separately as fee-for-service providers under Part B.

The actual outputs demanded by patients, however, often involve more than the services of a single physician. For example, inpatients consume hospital services as well as physicians' services, and some of them may consume the services of more than one physician, in order to achieve an improvement in health. The concept of paying a single fee and having it divided among a number of physician and non-physician providers has, however, traditionally been regarded as a dubious ethical practice by professional societies, one that smacks of fee splitting and corporate

medicine. Indeed, were a group of physicians to institute a per-case payment scheme on their own, they might well run afoul of anti-feesplitting laws in some states, though it is doubtful that the laws would be enforced.

The absence of fee sharing in medicine is somewhat surprising, since the method of splitting a single fee or price among a number of different suppliers of inputs into a final product tends to be the rule rather than the exception in most markets, including markets in other services, some of them professional. Obviously division of the price of the final product makes sense for manufactured and standardized products; it also makes sense for services whose output is readily discernible and whose production process is fairly standardized, such as hairdressers and dry cleaning shops.

In markets where there is some element of uncertainty in the production process, the single price method still tends to be used. In such cases, the buyer's agent typically is at risk for some of the costs. For example, new houses are often "bid" by a general contractor who must then coordinate all other suppliers of inputs and bear the financial risk of such uncertain factors as the weather, the prices of inputs, and the risk of unforeseen adverse outcomes. Indeed, the failure of medical markets--not just in the U.S. today but in many other countries over long periods of history--to adopt the general contractor model is something of an economic puzzle. The HMO is based to some extent on the notion of a general contractor for "health," but the still predominant fee-for-service arrangement differs.

B. HISTORICAL BACKGROUND: WHO HAS BEEN PAID?

Under the traditional insurance/fee-for-service system, the patient has most frequently retained responsibility for payment of incurred physicians' bills and has been reimbursed* by third party payers after a claim has been submitted. When the patient is not the recipient of payments, it is usually because the physician has agreed to discount his customary charges in return for receiving direct payment. Even in these cases, the choice of whether to relinquish direct payment rights remains the patient's.

The Blue Shield plans introduced the service benefits concept which permits participating physicians to receive direct payment for services, in return for agreement to accept the Blue Shield payment as payment-in-full for certain classes of patients (Woodward, 1978). Participating physicians receive direct payment for all claims on behalf of Blue Shield enrollees; non-participating physicians are paid by patients who then are reimbursed by Blue Shield (Sloan et al., 1978).

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* Although, the term used is "reimbursed," it is not necessarily the case that the patient pays physicians' bills prior to collecting from the insurer. In fact, the insurer requires no evidence that patients actually pay their bills before or after a claim is settled.

Commercial insurers, in nearly all cases, pay the patient directly. However, most commercial insurers permit patients to assign benefits to the physician. Particularly when the bill is large, patients may prefer to have the insurer pay the physician directly, rather than have to pay the bill and then collect from the insurer.

Government programs to provide health care coverage to selected populations vary in their payment options. The Medicaid program pays the physician directly: physicians who treat Medicaid patients must accept the Medicaid fee schedule amount as payment-in-full. Typically, the Medicaid fee schedule is substantially below the charge which the physician would make for the same service provided to non-Medicaid patients. In return, however, the physician collects payments with certainty--for patients who would have a high probability of not being able to pay for services at all.

The Medicare program offers payment options similar to those offered by commercial insurers. The primary recipient of payment is the Medicare beneficiary. The beneficiary, however, can assign benefits to the physician. If the physician accepts assignment, she/he agrees to accept Medicare's CPR fee as full payment for the service--charging the patient only the required deductible and a 20 percent coinsurance amount. Physicians have been permitted to accept assignment on a claim-by-claim basis. Beginning in the Fall 1984, physicians may elect "participating" status, by agreeing to accept assignment for all Medicare claims. In return, the Medicare program publicizes their names to beneficiaries and will permit future, higher fee increases for this group of physicians. Thus, the assignment option under Medicare permits the beneficiary to pay a

lower out-of-pocket amount and to face less paperwork. The advantage to the physician is primarily a reduction in bad debts and collection ratios.

Historically, then, under traditional fee-for-service insurance arrangements, payment has been directed to the physician by third party payers only under limited conditions. The physician generally must accept a payment which is lower than the usual charge for that service in order to receive direct payment. In all third party arrangements, except the Medicaid program, the patient retains primary payment rights and must formally relinquish that right.

C. HMOs AND RISK SPREADING ARRANGEMENTS

Under fee-for-service, the patient has traditionally retained direct payment rights when third party payers are involved. When the unit of payment is expanded to a capitation arrangement, the patient does not make direct payment. The HMO-insurer directs payment either to individual physicians or to a group of physicians with which it contracts for services on its enrollee's behalf. The payment arrangements may be salary, fee-for-service, or capitation for all or a subset of enrollees' medical services. The nature of the payment and the entity to which it is directed has implications for the placement of financial risk and for consequent physician behavior.

Staff model HMOs which pay individual physicians on a salaried basis place individual physicians in a neutral position with respect to financial risk: the physician receives no financial gain or loss as a function of his

resource allocation decisions. Under these arrangements, salaried physicians have little incentive to be highly productive and may face incentives to refer or place patients in institutional settings in order to reduce their own work load. Of course, many staff model HMOs incorporate a productivity criterion in the salary decisions and offer bonuses if the physicians are able to meet a minimum hospital days target, so that there may be an indirect financial incentive.

Group model HMOs are more prevalent than staff models. While some HMOs contract with a medical group formed exclusively to provide services to HMO enrollees, it has become common for new HMOs to contract with existing fee-for-service medical groups to obtain services for enrollees.* In either type of group model HMO, the HMO-insurer contracts with and pays the medical group rather than the individual physician within the group. Directing payment to the group spreads the financial risk associated with capitation systems across the group's HMO enrollees, rather than putting an individual physician directly at risk for specific enrollees' care. In many medical groups, income is distributed to member physicians using a methodology which takes productivity into account--often without regard to whether the patients seen are fee-for-service or HMO enrollees.

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* In some cases, fee-for-service medical groups are developing their own HMOs as a means to achieve increased patient loads or to avoid losing patients to other HMOs (MPR, 1984).

* Most commonly the capitation payment covers ambulatory services. A few HMOs capitate physicians for both ambulatory and inpatient services.

IPA model HMOs may pay physicians directly or may direct payment to a medical group which all participating physicians join. Unlike staff and group model HMOs, the IPA model HMO may pay physicians on a fee-for-service basis for care provided to HMO enrollees. Although there is usually a fee holdback when the medical group or individual physician are put on a fee-for-service basis, there is likely to be little difference in physician behavior between the IPA, HMO and conventional fee for service.

Other IPA model HMOs capitate individual physicians or the medical group for services provided to HMO enrollees.* When the form of payment is capitation, there can be quite different implications depending upon whether the medical group or the individual physician is the direct recipient. A typical HMO has 30,000 or more enrollees. When a medical group receives a capitation payment for 30,000 enrollees, the risk associated with an individual enrollee's health care use is spread across all the IPA physicians. However, an individual physician may provide services to only a few of the HMO enrollees; if she/he receives a fixed amount per patient, then one high risk patient could have non-trivial financial consequences. Even when the HMO provides reinsurance protection for costs above a maximum per enrollee, the individual physician may still suffer financial losses when he treats a disproportionate number of sicker HMO enrollees. Conversely, the incentives to control the number of units of care are much stronger under capitation. The decision to capitate individual physicians directly, or to capitate a medical group, therefore appears to have significant implications for physician behavior and for the quantity and quality of services which will be provided to HMO enrollees. Although this is an issue which has been raised, empirical evidence about both physician

behavior and actual levels of physician financial risk is currently lacking in the literature.*

Finally, there have been some examples of partial physician-only capitation which have been applied at the level of the single physician. Probably the best known example is the British general practitioner, capitated since the inception of the National Health Service. Although the British GP treats all NHS patients, the fact that he does not practice in a hospital and is liable only for his own time, not for the cost of outpatient consultations or inpatient care, makes this scheme a partial one. Moreover, the fact that virtually all of the population use the NHS means that issues of selection are not relevant, while a limited number of hospital beds makes it difficult to shift cost to the inpatient side. It is nevertheless instructive that variation across patients in the intensity of their need for outpatient care does not seem to be a noticeable problem in the British system: resource use risk is not really an issue.

Somewhat similar partial capitation systems have also been used for individual physicians in the United States who treat outpatients in the End Stage Renal Disease (ESRD) program. Physicians associated with each dialysis unit are capitated for routine physician services in connection with dialysis. Services for conditions other than kidney disease and all

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* Two studies currently underway are expected to provide information on the relationship of use patterns and physician financial incentives (Langwell U.S. DHHS, 1985; and Mathematica Policy Research, 1984).

services to inpatients are billed under fee-for-service. Again, this partial approach appears to be working, and in fact was voluntarily chosen by many nephrologists and internists before it was made mandatory. In addition, there is evidence that capitation is associated with lower total expenditures although physician self-selection may also account for lower costs.

Finally, in other experimental programs the capitation payment of a gatekeeper or patient-manager physician has been attempted. The pediatric program for Early and Periodic Screening Detection and Treatment (EPSDT), for example, used capitation for children who were in the program; a similar approach has been tried in other contexts. A private sector experiment in putting gatekeeper physicians at risk involved the SAFECO program in Seattle. That program failed financially, however, apparently because the risk incentives were not strong--physicians were at risk for only a small fraction of total cost--and because the premiums for the coverage were set unrealistically low.

D. EVIDENCE FROM STUDIES OF GROUP PRACTICE AND HOSPITAL BEHAVIOR

There is one arrangement which leads to dividing of fees which is fairly common among physician practices; that is the use of group practice arrangements. Particularly in the case of multi-specialty groups, it is easy to see that, even if there is no joint billing, there will generally need to be a sharing of revenues after the fact, so that in effect fees are split. While such groups usually receive payment on a fee-for-service basis, their behavior can indicate what would happen if a number of

different physicians were put at greater joint risk for the cost of a package of services under a more inclusive definition of output.

Research on physician behavior in group practices has found two results of interest for this paper. First, the use of the group as a method of pooling risk is one of its attractions to prospective members. Second, groups do tend to have weaker incentives for productivity, the larger the group, and productivity does fall in response to weaker incentives. Office visit productivity per hour was 30 percent less in groups using weak productivity incentives as compared to those using stronger incentives (Held and Reinhardt, 1981). It has also been observed that the incentives for productivity are weaker in groups that compensate physicians with salaries or other methods unrelated to productivity, as compared to those which base physician income on productivity. This lower productivity is presumably offset by other advantages of group membership, but it is a fact. Finally, it is also conjectured that such groups may be more likely to adopt non-financial, administrative controls on member behavior to spur productivity or to prevent other kinds of deviations of individual physician behavior from that which advances the group's objectives.

Of course, some existing multi-specialty groups receive part or all of their payment on a capitation basis. Here the dissipation of financial incentives may actually work to the group's advantage. While such groups would presumably prefer to be more productive for whatever physician work time supplied, they may also benefit from a less productive physician who then orders fewer complementary inputs. Whether incentives can be offered

that spur productivity while at the same time administrative controls can limit output is at present an open question.

One obvious organizational entity to share physician payments for inpatients would be the hospital's medical staff. However, almost no hospitals currently have medical staffs organized in a single practice for purposes of sharing revenues. Some hospitals, especially university teaching hospitals, may have some of the physicians in some departments organized into practice plans, but even here the groups tend to be smaller than the hospital's medical staff as a whole. There is virtually no direct evidence on how a medical staff would behave if it shared revenues.

However, there has been some research on the effects of medical staff characteristics on medical staff and hospital performance. There are two important and reasonably consistent results. The first is that a dissipation of primary attending responsibility among more physicians tends to be associated with less efficient hospital performance (Pauly, 1978). The second is that rigid and authoritarian medical staff control structures tend to be associated with poorer performance than those which permit some physician autonomy (Neuhauser, 1974; Roemer and Friedman, 1979).

All of these phenomena have been interpreted as reflecting a single influence: the difficulty of generating strong direct financial incentives, and the concommittant difficulty of using administrative controls, as the group which produces complex services grows large. Even if all group members share exactly the same goals, the incentives for non-cooperative "free-riding" behavior, and the greater difficulty of detecting that

behavior, tend to increase with group size. This "size principle" has been observed in many settings, some of them medical (Newhouse, 1970) and many of them not.

The critical empirical question for the question of defining efficient groups is not, however, whether incentives get worse as size increases; they surely do. Rather, it is whether those incentives worsen at a faster rate than other benefits of croup size grow. The benefits could either be a kind of insurance or pooling in the group (of the risk of revenue fluctuation, or the risk of being called for a late-night emergency) a possible economics from sharing inputs. There is not a definitive answer to this question in the research literature. While there is some suggestion that the relative advantage of group practice (as opposed to solo practice) has been increasing over time, in the sense that new physicians have tended to choose such practice, the most popular size has tended to be rather small-4 or 5 physicians, and certainly fewer than 10 (Frech, 19__). Large groups have not been favored in fee-for-service practice, suggesting that there must be some disadvantage and few advantages to size beyond some point.

There is, however, one definitive empirical result which is worth reporting, even though its interpretation is less than definitive. Whether we look at the distribution of all currently active physicians among practice arrangements, the distribution of new physicians, or the distribution of those who switch practice arrangements, there is a wide variety of practice sizes and compensation structures. This distribution might represent mistaken choices in part but it almost surely represents as well fundamental differences among physicians in their attitudes toward

practice, toward risk, and toward financial incentives. The implication for the design of groups to receive payment is profound: there is no single best (or even approximately best) form of practice arrangement; given diversity among physicians; only multiple options will be efficient.

While we will be considering some of this empirical evidence in more detail below when we consider specific payment entity options, there do appear to be some important policy principles which can be distilled from the research literature.

- o Heterogeneity: It is certain that no single entity--existing or newly created--is likely to be most appropriate in all circumstances. Unless there are strong disadvantages to doing so, we want to encourage flexibility and variety.

- o Dissipation of Incentives: Once the group size exceeds a fairly small number, individual direct financial incentive properties of being at risk for cost are lost. The group may still be able to use administrative rules or procedures, but these will necessarily be somewhat imperfect. Accordingly, other things equal, largeness in size of a risk sharing group is undesirable from the viewpoint of financial incentives. Of course, large size may have a beneficial effect on risk spreading.

There are also some common sense postulates about policy changes which we shall follow in the analysis to come.

1. It is desirable to have the entity which receives payment approximate the entity which will eventually organize and control production. In a world of costless transactions, the initial locus of payment would be of little consequence, since the market could subdivide or combine. For example, payments could be made to the county medical society which could then subcontract both production and organization to medical groups or hospital staffs, or payments could be made to individual physicians who could then either combine (within existing groups or in newly created organizations) or purchase services from other providers.

In reality, however, there are costs to arranging these kinds of transactions, costs which ought to be kept down if possible. Indeed, Coase in his classic article (1941) has argued that transactions costs are the reason why "firms" or organizations for production form--to avoid the costs of the market. Since in a sense we are here talking about defining the appropriate firm to produce the new types of output, we need to avoid introducing unnecessary additional transactions into the system.

2. It is easier for entities to unite than to secede; since errors must be made, one should err on the side of a "too small" entity. This principle is especially important for non-profit firms or groups which are not organized as joint stock companies. Any payment scheme will involve some potential profit or (in economic jargon) "rent," a surplus of revenues over the payments that need to be made to all suppliers of inputs to keep them in their current use. When the group is larger than a single agent (e.g., an individual physician or capitalist), some decisions must be made about how rents are to be divided; each individual or organization will tend

to guard the rights to rents which it has. That is, negotiation costs will be incurred in dividing rents, since there is no "natural" basis for payment. Of course, in a one-agent firm, there is no problem, while joint stock companies solve the problem by agreeing in advance to divide profits "per share." But in a multi-agent group like a medical staff or a medical society, there is no natural basis for division. The larger the group that initially receives the rents, the more arguing there will be about how to divide them.

In addition, the mere fact that initial payment is made to an organization tends to give the organization property rights in rents. Even if the group is in some sense too large, the process of dividing those rights, of giving up what was already obtained, will tend to be more costly than the voluntary mutually beneficial deals which a new combination would represent. There is, in short, a kind of flypaper effect in which claims to rents once obtained are only gruding ________. This is especially likely to be the case if the initial individual rights to rents within the larger organization were poorly defined; as they would be, for example, in an existing hospital medical staff which was not organized for the purpose of dividing revenues for physicians' services.

III. WHO IS PAID WHEN THE UNIT OF PAYMENT IS THE CASE?

A. INTRODUCTION

One new definition of physician output which is currently receiving serious consideration is the inpatient case or admission. The impetus for

this consideration comes, of course, from the fact that per-case payment to the hospital for hospital inpatient services has already been initiated for Medicare beneficiaries under the DRG system. If analogous physician DRGs could be defined, to whom should the payments be made?

In order to answer this question using the principles discussed above, we first need to be precise about the form such payments might take. The most general form would be one which provided for a single payment (to someone) for any physician services rendered in connection with all Medicare inpatient admissions. There are, however, some less general forms which will be worth considering. One such form would be a selective DRG arrangement, in which only some admissions in some DRGs would be paid for in this way; other DRGs would continue being handled on a fee-for-service basis. A second less general approach would be to use a per-case payment for some but not all of the physician services rendered in connection with an admission. For example, one possibility would be to pay only hospital based physicians on a per admission basis. Another possibility would be to pay the primary attending physician a per-admission payment, but permit a set of additional physician services to be billed separately on a fee-for-service basis, especially if they are not rendered by the primary physician. In what follows, we will consider all of these alternative forms.

The advantages which are expected to flow from per-case physician payment include:

1. There will be a reduction in billing costs as fewer procedures will need to be identified separately and fewer entities will receive payments,

2. There will be financial incentives to reduce "procedure inflation" (labeling the same procedures in more complex ways in order to increase total payment), since there will be no advantage to disaggregation of procedures,

3. There will be financial incentives to avoid recommending additional physician services, and

4. Reduced use of physician services is likely to be accompanied by reduced use of hospital inputs.

Although we will comment on billing costs, our evaluation of alternative payment entities will be based primarily on financial incentives. Other things equal, stronger incentives to consider cost risk are to be preferred. Which arrangements are more conducive to stronger incentives?

B. CURRENT APPROXIMATIONS TO PER-CASE PAYMENT

A partial per-case payment arrangement is already conventional for the surgeon's services in connection with a surgically treated admission. The surgeon's fee typically includes not only the surgical procedure itself, but also preoperative and postoperative care (in and out of the hospital). In addition, any extra surgeon inpatient visits that might be required by an

especially ill patient or one with complications would ordinarily be included in this fee. In this sense, the surgeon is at risk for the (subjective or time) cost associated with his services to the patient. The fact that this arrangement is virtually universal suggests that the risk of additional care caused by severity variations within a given defined procedure is a risk that surgeons are willing to bear. A patient who requires more frequent postoperative visits, or whose surgery takes longer, does not generate additional revenues. Of course, if additional surgical procedures are rendered, even in the course of a single admission, then there will be additional billing, so that the surgeon's exposure to the risk of additional demands on his time is limited. In addition, if the procedure turns out to be abnormal for some reason--for example, because of wound infection--the surgeon will often charge additionally, with the decision on what is a _____ abnormal made by the surgeon himself.

In contrast, other physicians who render services to inpatients do not typically bill on such a "collapsed service" basis. Medical specialists or general practitioners who serve as the primary attending physician for an inpatient who is not surgically treated will bill for each hospital visit and for specific diagnostic or therapeutic procedures. In addition, other physicians who render services, either as consultations or as radiology, pathology, or anesthesiology, will bill for individual services.

While we will consider the question in more detail below, it is useful to ask why medical specialists have not chosen to bill on a per-case basis. (There have been some experiments with paying them on a per-case basis which we will review below.) There are two distinct but related possible causes.

In contrast to surgery, there is no natural major procedure in many medical cases which could be used as a label for what the physician did: development of the DRG labels could be all that is needed. However, it may well be the case that neither DRGs nor other alternative labels which could be easily developed will sort patients into groups which a physician would treat with resources of similar cost. This heterogeniety is obviously likely in connection with an admission for diagnostic purposes. It also tends to be true in common medical diagnoses, like pneumonia or myocardial infarction for which services rendered can vary considerably, depending on the path the disease follows. At the most realistic level, physicians may have felt that billing all patients the same fixed fee based only on diagnosis may have been unacceptable to those patients who ended up needing only a few services, while the physician may have been concerned about the risk he was bearing by accepting a low fee for a type of admission that usually turned out to require few services from him but occasionally required many.

There is, in any case, one crucial difference between the current surgical approximations of per-case payments and an idealized physician DRG. The difference is that in none of these approximations does one physician receive a payment which he shares with other physicians who provide care to the patient. Indeed, when surgeons are found to share the surgical fee they receive with other physicians who assist them at surgery, this has typically been regarded as unethical fee splitting (although it has sometimes occurred).

The simplest way to think of a physician DRG is as a single payment, made initially to someone, which must then be divided among all physicians providing care. Such an arrangement sounds truly revolutionary, and may therefore be subject to some skepticism. There is, however, another way to think of the arrangement: as an upper bound on total payments per case made initially on a fee-for-service basis, but with some differences. Just as with an upper limit, should fee-for-service billings exceed a certain amount, only that amount will be paid. Should billings fall short of the bound, however, there are generally two polar options: pay the billings, or pay the bound (or, for that matter, pay something in between). Using the bound rather than the billings would offer incentives to avoid services even in such cases, and would be a way of offsetting a shortfall between billings and payments in more serious cases.

These observations suggest both a way of implementing physician DRGs and a way of making a transition from the current arrangement: impose a per-case upper bound, and gradually increase the bonus from billing less than the bound until the bonus eventually equals the difference between billings and bound. We will examine below the implementation of such a transitional system in the context of different payment entities.

In what follows we begin with what is probably the most frequently discussed entity for receiving DRG payments: the hospital's attending medical staff. Using this as a benchmark, we then consider payment to a larger or more inclusive provider entity, and then to a set of smaller entities, ending with the individual physician. Finally, we consider making

the per-case payment to the patient. As suggested above, there will be three important considerations with regard to each possible payment entity:

1. Whether the entity is of efficient size for purposes of production of care

2. Whether the entity is of efficient size for purposes of spreading financial risk

3. Whether the entity is of efficient size for minimizing transactions costs.

C. PAYMENT TO THE HOSPITAL MEDICAL STAFF

One possible strategy would be to make per-case physician payments for all Medicare inpatients in a hospital to the hospital's medical staff. There almost always is a formal medical staff organization in any hospital. The staff organization is not, however, usually constituted as a firm or as a partnership; instead, it is a voluntary association of the physicians with admitting privileges at the hospital. Although such privileges are formally granted by the hospital's Board of Trustees, the medical staff is usually given the responsibility of making recommendations about privileges, as well as controlling other aspects of the medical staff's behavior. Most staffs are organized so that the ultimate authority lies in the staff's members, exercised according to some (often rather complicated) voting rule. Day-to-day decision making, however, is usually delegated either to individual physicians, as the chief or president of the medical staffs and as the heads

of clinical departments, or to special committees of the medical staff. The use of committees has become much more common over time (Noie et al., 1983); in contrast, employing salaried physician heads of clinical departments, or of the medical staff as a whole, are still rather uncommon, although they are found in larger teaching hospitals.

In most cases, then, individual physicians do not have a financial or contractual arrangement either with the hospital (as a corporate entity) or with the other medical staff members when it comes to revenues or costs. In a few hospitals the medical staff is entirely organized as a multi-specialty group practice (e.g., Henry Ford Hospital), and in some hospitals (more frequently teaching ones) some fraction of the medical staff is organized as a practice plan. The overwhelmingly common practice, however, is for the medical staff to pass on staff membership and privileges, coordination of physician activity, and the patterns of clinical care, but not to become directly involved in financial transactions between the hospital and individual physicians, between patient and physician, or among the physician members of the medical staff. A telling piece of empirical evidence is that when PPOs have approached hospitals, they have secured price concessions from the hospital, and they have generally sought medical staff endorsement for the new arrangement and the new patients (and sometimes new physicians) it will bring. But they have rarely sought direct financial relationships with the medical staff as a whole, and those relationships have usually been limited to price concessions rather than in the form of some sharing of revenues and costs.

Medical staffs themselves are not organized for purposes of sharing costs and revenues, and therefore may well not be willing or able to perform such functions. There are likely to be some exceptions. One suspects that the staffs of some hospitals, especially teaching hospitals, often salaried and with non-salaried members organized into faculty practice plans, probably could make a fairly easy transition to sharing all revenues. (Even here, the often fierce independence of departments suggests that cross-department sharing [e.g., between surgery and cardiology] might be something of a problem.) But "some" is not "all" (or even "many"), and does not provide a basis for a universal program of paying hospital medical staffs.

What reasons are there to suppose that hospital medical staffs will not be appropriate for accepting per-case payments? The reasons concern both production efficiency and transactions costs.

The transactions cost argument is the simplest, although it is conceptual rather than empirical. The division of rents is a zero sum game--given a set of admissions, what goes to one physician or set of physicians is taken from others. Hospital medical staffs have two strikes against them in the performance of this function. Since they must decide collectively on a division rule, they will have to use some kind of a voting or collective decision process. It is well known that zero-sum voting games often lack equilibria; coalitions can form and reform, but no particular outcome is stable, much less equitable. Ultimately, there is a bargaining problem.

The second problem is that most medical staffs are probably too large and too diffuse to facilitate the kind of negotiation and compromise that

can lead to agreement and which can preserve agreement in the face of changing external circumstances. The average hospital had in 1982 an average of 120 active staff physicians. Not only do these physicians differ by specialty, they also differ greatly in the extent to which they use the hospital; on average approximately 22 percent of admissions were attended by just five medical staff members; the rest were spread much more diffusely over others. Medical staff membership is not even exclusive; many physicians hold staff appointments at more than one hospital (Noie et al., 1983). All of these observations suggest that a typical hospital medical staff will have a hard time agreeing on a division of revenues and adjusting that division to changing costs and demands for physician services. Even if the hospital uses a kind of internal fee-for-service system, there will be controversy about relative fees and relative shares of any residual.

With regard to productive efficiency, what is most relevant is the direct financial incentives to physicians for productivity. Whether the objective is to supply many or few physician services, efficiency requires that the services which are produced be produced efficiently. In general, the larger the number of agents who share a revenue stream, the smaller the consequences of any individual agent's effort on his own rewards, and consequently the smaller the incentive for performance. This is true whether the revenue is shared equally, or whether it is initially divided on the basis of output and a residual gain or loss is then distributed.

Empirically, it seems that these financial incentives tend to be dissipated at a group size of perhaps 10-20 equal-sharing agents; the large size of the typical hospital medical staff suggests that, even if the staff

as a whole is at risk for costs, the fraction of cost of additional physician services which any individual physician will bear will be negligibly small if risk sharing benefits are to be achieved. Rules may substitute for weakened direct incentives (some HMOs have been especially adept at this), but there is no gainsaying the proposition that the incentives would be stronger, and performance improved, if fewer agents were involved.

Some HMOs have been able to achieve what are regarded as satisfactory results with such rules. Nevertheless, it is undoubtedly true that, even with the best of rules and the best of administration, the larger the number of persons to be coordinated, the greater the difficulty any administrative procedure will have. Such an hypothesis is generally supported by studies of large organizations. This is not to argue that larger organizations are necessarily inferior to smaller ones; it is only to say that there ought to be some additional identifiable benefit to large size, since there are sure to be some costs.

There is in fact fairly strong empirical evidence that hospitals with larger medical staffs, or medical staffs with more diffuse physician admitting patterns, tend to have high costs, other things equal (Pauly, 1978). These studies refer to inpatient cost, which is in some sense a shared cost. If the medical staff pooled its costs and revenues, similar behavior would be expected for physician costs.

The anecdotes concerning medical staff behavior after a hospital gets paid on a DRG basis suggest that medical staff can be induced to change

behavior. There is empirical evidence that length of stay dropped sharply for hospitals as they went on the DRG system. But the overall picture is far from clear; length of stay had been declining for Medicare patients since 1981; in addition, length of stay declined for people under 65 as well (though not as strongly, while admissions fell for all patients). These trends would not be consistent with medical staff behavior intended to increase hospital net income. It is also not clear why (except for hospitals in financial distress) the medical staff should be interested in enchancing hospital profits. In any case, the argument just presented does not say that large groups of agents will not respond to changed incentives *at all*; it only says that the response will be stronger if the group is smaller.

Despite these important disadvantages to using the medical staff as a payment entity, there are also some advantages. The most obvious one is that the medical staff is approximately coextensive with the maximum set of physicians who might treat a given set of inpatients. All of the physicians who might provide services in connection with an inpatient admission will be on the hospital's medical staff. It would, therefore, not be necessary to have formal transactions outside the medical staff in order to secure their services.

Another potential advantage of this arrangement is that it would facilitate a strategy of per-service payments to distribute the bulk of the revenues, with any excess or shortfall between total fee-for-service billings and the per-case payments available to be distributed to all

physicians who rendered service. As noted above, however, administrative simplicity has a cost in terms of incentives.

Finally, even for those admissions for which only one physician renders services, the pooling of risk among all staff physicians should greatly reduce the risk of illness-severity variation which any individual physician bears. The risk pooling would generally take the form of dividing the total payment so that physicians who incur more time cost for their own services receive more revenue. It would presumably also involve sharing the cost of consultants' and hospital based physician services. One method of doing this would be to pay physicians according to a shadow fee-for-service schedule, and then distribute any difference between billings and revenues pro rata.

Unfortunately, to the extent that physicians share the risk of unusually high cost patients with each other by dividing revenues in some way based on services rendered, they then also diminish the direct financial incentives to be concerned about those costs. The physician who is willing to prescribe extra medical care for the severely ill patient because he will bear only a small fraction of the costs of those services will also be willing to prescribe less necessary services for which he or his patient have some desire. To the extent that those services are ones he renders himself, he may actually gain revenue (as he would under fee-for-service): in any case he is not individually at risk for cost. To the extent that he recommends other physicians' services, he receives no financial gain under either fee-for-service or per case payment.

Consider, for example, a patient whose diagnosis carries a relatively low per case payment, but who is an especially severe case. The patient will receive extra services from the attending physician, from consultants, and from hospital based physicians. How would the medical staff as an entity pool this risk? It would presumably do so by making payments to all of these physicians based on the services they rendered or the time they spent, rather than based on the per case payment received. But then, to the individual physician supervising a patient's care, it will appear that he is being paid for his services on a fee-for-service basis, and is paying no costs for consultants. He will therefore have an incentive to overtreat if the fee is high enough, just as under the current arrangement. Administrative rules may help to control this behavior, but they will be limited in their impact.

D. PAYMENT TO A GROUP OF PHYSICIANS LARGER THAN A HOSPITAL MEDICAL STAFF

Another possibility is to make per-case payments to an entity such as a county medical society or a PPO. Such an entity could offer the advantage of greater risk spreading; even a severely ill patient who received a large volume of physician services would not have a large effect on average cost or net revenue per physician. It would also facilitate transfers among hospitals, since a transferred patient would not represent a loss in profit.

Finally, it is important to note that self-selection seems to play an important role in the distribution of physicians with different skills and training, different personalities, and different attitudes toward risk across organizational arrangements. The question has been most directly

studied for medical groups; here it was found that the physicians who belonged to a group with particular characteristics (for example, a compensation scheme strongly related to productivity) tended to have characteristics which "matched" those characteristics (for example, a subjective perception of being responsive to incentives and a higher tolerance for risk) (Held and Reinhardt, ____). We will discuss this point later in the paper. The main point here, however, is that existing medical staffs were not formed for purposes of distributing revenues and allocating costs. It is unlikely that the present distribution of physicians across alternative hospitals' medical staffs represents an ideal, or even an approximate matching in characteristics that would be relevant to dividing net income. Of course, the existing distribution is not random; different hospitals have medical staffs with quite different observable characteristics. However, the appropriate sorting by propensity to respond to financial incentives, to over- or underprescribe, or to adapt to additional rules and constraints has obviously not yet occurred.

If the staff were made the payment entity, there would either have to be more redistribution of physicians among staffs, or else existing medical staffs would not perform as well as they could. Since medical staffs were not assembled for financial functions, there would need to be some difficult reorganization if they are to perform that function.

However, it is easy to see that such an arrangement will lead to further dissipation of incentives, and further difficulties of control. While it is not obvious that the effect on direct financial incentives would be much worse than for the hospital's staff, it probably would be difficult

for a larger group to control cost-increasing behavior through administrative measures such as utilization review.

Nevertheless, a PPO type arrangement may sometimes be appropriate. But since individual hospitals could combine their staffs for purposes of receving revenues if the wished, it would not seem appropriate to have payments to a large entity made mandatory.

E. PAYMENT TO A GROUP OF PHYSICIANS SMALLER THAN THE HOSPITAL'S MEDICAL STAFF

A moderate-sized multi-specialty group would from many perspectives seem to be a desirable organizational structure for receiving per case payments. The major practical difficulty here is that, although some physicians belong to such groups, most currently do not. After reviewing the conceptual advantages to using such groups when they exist, we will then deal with the existence question directly.

There are some major advantages of multi-specialty groups, particularly when such groups include hospital based physicians and the most frequent referral partners of primary attending physicians. First, and most obviously, the group will already have settled the question of how to divide costs and revenues. Payments for an admission can be shared among members according to whatever sharing scheme they have already found to be acceptable. The group may want to initiate a shadow fee for service pricing arrangement, and make payments based on that. Any surplus could then either be prorated or shared in some other way. Of course, under a DRG payment

system, the group will be faced with a fixed total payment, and presumably may wish to alter compensation or administrative arrangements to offer stronger incentives to economize.

A moderate sized group (meaning 8-20 physicians) would also be able to coordinate its members' actions well. The administrative procedures to control overuse would be easier to enforce in a smaller group. More importantly, each individual would have a non-trivial (though not always large) share of group costs, even if risk is pooled. For example, the internist who orders consultants' services would expect to see his own income reduced if he orders consultations and the consultant were rewarded on the basis of his volume of output, since more for the consultant means less available for the internist.

One conceptual disadvantage of a moderate sized group is that the group may not be able to pool risk adequately. This is a possible difficulty, but there are reasons to think that it may not be too severe. First, either via market insurance or via outlier adjustments in the payments system, the group may be able to insure against the severely and expensively ill patient. To be sure, any type of insurance also reduces incentives for cost containment and productivity, but if such patients are sufficiently rare, and if their course of treatment is either less discretionary or more subject to monitoring, the moral hazard should not be too severe.

Second, the true level of risk may not be all that large in any case. A precise definition of the risk is relevant here. Risk arises because not all patients the group sees in a given DRG have the same level of illness

severity. The per case payment does not vary, but cost (and therefore net income) does vary. Variation in severity within DRGs within group is necessary for net income risk to exist, but it alone is not sufficient to indicate how much risk a physician bears, for three reasons. (1) The variation within a DRG can be reduced to the extent that several cases with the same diagnosis are treated; if severity is independently distributed, variation will tend to cancel out. (2) Even if some or many DRGs are seen only rarely by each physician, risk can also be pooled across DRG. (3) Risk can be pooled across the physicians in a group.

With 20 physicians in a group, and assuming an average of 50 Medicare admissions per physician per year, a coefficient of variation of 100 percent within DRG categories reduces to a very small coefficient of variation of an average cost per physician, as little as three percent, across all DRGs. There is still the possibility of the extremely ill, $20,000 case, but that should be able to be handled with stop-loss insurance.

Of course, if there is systematic (non-random) variation in severity, then pooling within the group (or any kind of pooling) will not work to reduce risk. If such variation is non-random at the level of the hospital as well (i.e., if some hospital staff tend to treat more severely ill patients), then even the medical staff will not be a large enough entity. It seems unlikely that such non-random variation could pertain to different groups and not to the hospital as a whole.

The major problem with implementing the moderate sized multi-specialty group approach is that, although some physicians are in such groups, most

are not. Even existing groups may not include the right combination of anesthesiologists, radiologists, surgeons, internists, and GPs. There is no obvious way to compel the creation of such groups. Moreover, there is some evidence that physician group members are self-selected to be especially cooperative participants in such enterprises. Conversely, physicians who have selected solo practice would probably tend to make bad group members.

These observations suggest that an ideal strategy would be one that allowed, even encouraged, such groups of referral partners to form, but did not presume that they could be instantly created. We will suggest a strategy which begins with the primary attending physician below, and which phases in physician DRGs with enough lead time to permit such groups to form.

F. PAYMENT TO THE PRIMARY ATTENDING OR GATEKEEPER PHYSICIAN

Another possibility would be to make a per-case payment to the primary attending physician. There are two versions of this strategy, one already tried experimentally and one generally untried. The untried strategy is to make a payment to a single physician-gatekeeper for all inputs into the treatment of the case. Ordinarily one would expect this physician to be the primary attending physician who has legal responsibility for the patient during his hospital stay, although it would presumably be possible to permit the patient to designate a different physician as the recipient of the payment in advance. The approach which has been tried experimentally is to pay the primary attending physician only for his services. Consultants, hospital based physicians who render service to the patient, and surgical

assistants would all continue to be paid on a fee-for-service basis. Such an approach was tried experimentally for several years at a number of hospitals by Pennsylvania Blue Shield (Markel, 1980).

Let us first consider the single gatekeeper physician approach. Under this arrangement, the primary attending physician who presumably coordinates the patient's care, and chooses, at some level, the other physician services the patient will receive, would be liable for the cost of those other services, but would receive a per case payment large enough on average to permit him to pay that cost. (A partial version of this approach was used in the SAFECO plan in Seattle.)

The major virtue of this approach is that it represents the ideal incentive for production efficiency. So far as the physician decisionmaker is concerned, additional physicians' services reduce his net income dollar for dollar; he is fully at risk for the physician costs of care. He will therefore weigh carefully the benefits and costs of alternative courses of the therapy. For his own services, he also has incentives both to produce efficiently and to control the quantity. The crucial advantage is that only this arrangement permits the decisionmaker to compare benefits with actual costs.

The defects of this mechanism are as obvious as the advantages. First, it does require explicit fee splitting and the transactions costs that go with it. Since the other physician services are, in effect, purchased in a market, one might expect that market to function fairly well, probably in a way superior to the implicit market within a hospital's medical staff, but

probably not as well as the streamlined and repetitive market embodied in a multi-specialty group. Consultant and hospital based physicians may also not be eager to have their services purchased by another physician, but some control on their behavior is implied by any per case method.

The more serious defect, however, arises if there is some variation in severity within diagnostic categories. Here we need to consider two cases, one in which the primary attending physician renders all or virtually all Part B services the inpatient receives, and the other in which some services are rendered by other physicians.

In the case in which the primary attending physician renders all services, the problem is one of variability and risk of time cost. Just as in the case of the moderate-sized group, there is a chance that a severely ill patient will be included in some diagnostic category but the payment mechanism will not compensate the physician for the additional services he renders. One important facet of this case is that the physician is at risk for his time, not his money, although time spent for one patient presumably means less time to see other patients. The discussion of this case is likewise much the same as that for groups. What is crucial is not the variation within DRG, but rather the variation over the whole set of inpatients the physician treats. Even the time period is relevant: should we think of the physician as pooling risk over a month, a year, or a career?

Here again stop-loss insurance is a suitable solution (either public or private). Moreover, since we know that physicians vary greatly in the extent to which they treat inpatients, not only across but within

specialties, one might consider exempting those physicians who treat few inpatients per time period from the per case mechanism, and permit them to continue to be paid on a fee for service basis for those inpatients they do not treat. Since the total amount of physicians' services rendered by such physicians is relatively small, a modest departure from a rigid universalism may yield large dividends in terms of administrative cost and physician acceptability.

For the single-physician admissions, it would also be relatively easy to think of a fee-for-service transitional mechanism. Physicians would continue to bill and be paid on a fee for service basis, using either the existing or a revised schedule. However, each physician's total billings for inpatients would be checked periodically against the per case payment total, and any surplus or deficit would call for an adjustment, either as a lump sum payment or charge or as a revision upward or downward in next period's payment level.

For multiple-physician admissions, there is a similar problem of variation in risk. The problem differs only to the extent that such admissions are associated with greater variability in cost. Multiple physicians do obviously add transactions costs, and radically change the way consulting or hospital based physicians would view their source of income. Finally, multiple-physician admissions are less suited to a fee-for-service transitional mechanism. While one could permit physicians to bill fee for service and prorate all charges depending on the relationship of total billed amounts to the per case payment, such a procedure would probably need to be done on an admission-by-admission basis, since the set of

participating physicians would vary. This means that, to the extent that the use of consultants or other physicians is positively correlated with severity, those physicians will tend to have their bills marked down to a greater extent than would the primary attending physician who would keep all the profits from the less severe single-physician admissions. It would therefore be more difficult to implement a fee-for-service initial distribution of proceeds; primary the attending physician would somehow have to engineer a transfer from his less severe cases to his more severe ones.

There are some situations in which this would be less of a problem. One would be if the primary attending physician routinely used the same referral partners, and tended to use at least some of their services for each patient. For example, if a general surgeon typically used the same anesthesiologist for his patients, the anesthesiologist would also share in the increased net income associated with less severely ill patients. The other situation would be if there was little variation in severity within DRGs. Then Medicare could make direct payment to all physicians on an initial fee for service basis, with adjustments for excess charges as before.

What evidence do we have on the question of variation in severity within DRGs? Mitchell and Cromwell (1984) have addressed this question most directly. They found sizeable coefficients of variation for physician charges across patients within DRGs; they also found that on average physicians treated relatively few cases per year in each of the DRGs they examined. Their work considers the variation in charges, not the variation in severity. As Wennberg's work on physician practice patterns reminds us,

different physicians appear to treat similar diseases in quite different ways. Hence, large variation across physicians in average billed charges or length of stay is still consistent with little variation in average severity. Variations in charges within DRG within an individual physician's practice is probably stronger evidence for variation in severity, although even here it is possible that a given physician varies his regimen for patients with the same disease, possibly as a function of patient preferences or as an attempt to informally try alternative courses of action. In any case, it is quite difficulty to estimate even the variation in charges within a physician's practice. The crucial measure is the deviation between a mean or typical charge for that physician and the actual pattern of charges. However, most physicians see too few patients within any DRG (at least over a year) to permit calculations of a physician-specific mean charge. Mitchell has calculated the variance in charges from the all-physician average, but that measure also captures variation in practice patterns and in charge levels. Even an adjusted mean (e.g., by specialty and location) will vary with things other than severity.

Even using a multi-physician mean as a standard of comparison, Mitchell and Cromwell (1984) and Mitchell (1985) find moderage variation in charges for surgically treated discharges; but they find coefficients of variation of approximately 100 percent for medical diagnoses.

As noted earlier, if severity variation was random, even this kind of per-case variance would be greatly reduced within an individual physician's practice if the physician has a moderate volume of Medicare patients. However, Mitchell's data indicate almost no such pooling effect. Either

practice style must vary, or the full set of each physicians patients must vary in severity.

We consider the policy implications of such physician-specific variation in resource cost below. At this point, the crucial thing to note is that a variation in resource cost which cannot be pooled away at the individual physician level (because it varies from practice style or from the typical type of patient the physician treats) also cannot be pooled away by any larger set of physicians. Paying the hospital staff, for example, will not help because the physician where set of patients are consistently sicker than average will not receive the same share of income as would a physician where patients had average severity. Over time, as severity variation is identified, the physician with a sicker patient list will earn less, since other physicians will not be willing to accept a reduction in their incomes to accommodate his patients' greater use of resources.

In conclusion, payment of a per case payment to a primary attending or gatekeeper physician has some distinct advantages and some administrative difficulties. If pooling is possible, severity variation might be reduced to tolerable levels for those physicians with moderate Medicare patient loads. It is likely that there are some DRGs for which it would be easy, and others for which it would not work very well. One possibility would be to think of an incentive approach to adopting per case payment. In much the same fashion as the proposed policy toward full acceptance of assignment, there could be a financial reward for electing per case payment (or a financial penalty for staying with fee-for-service). The rationale for the reward is obvious: per case payments save Medicare money, and some of those

savings could be shared with physicians who adopt them as a reward or bonus. This bonus might vary from DRG to DRG, being higher for those which either (a) have the largest expected savings over fee-for-service or (b) are most suitable for per case payment. If we are correct that a multi-specialty group of modest size is the most efficient arrangement, an additional bonus could be offered for such an arrangement, or one could simply anticipate that the greater efficiencies from such an arrangement, if they do in fact exist, will over time induce physicians to combine in such groups of revenue-sharing referral partners.

One possibility would be to combine the bonus with stoploss insurance or ______ adjustments. The physician who was willing to combine into a group and accept more risk would no longer have to pay an explicit or implicit "premium" for stoploss protection.

G. PAYMENT OF PER-CASE INDEMNITY TO PATIENT

Pure insurance theory suggests that financial incentives are best if the per case indemnity is paid to the patient. In principle, the indemnity should only be conditional on the occurrence of illness, not on the hospital admission, something we will discuss when we consider per illness payments. But even if the payment depends on an admission, payment to the patient gives the patient maximum flexibility in choosing his course of care; it offers him the optimal incentives for trading off costs and benefits with regard to his own preferences, not with regard to a physician's preference for his own income. Payment to the patient counteracts the incentive to underprovide services. Obviously, however, he will do so appropriately only

if he has accurate information about the benefits as well as the costs, and this is unlikely to be the case, in general. Nevertheless, there may be some situations in which patients are reasonably well informed.

Again if patients are well informed and additionally if physicians do not have monopoly power in pricing their services, the ideal insurance arrangement is one in which the patient receives a per case payment which he is permitted to supplement with his own funds for aspects of care or types of physicians whose price exceeds the indemnity amount. Permitting balance billing, for this type of patient, actually makes the patient better off, since it permits him to obtain additional quality, convenience, or service intensity if such services are worth their cost to him.

All of this discussion is, of course, somewhat unrealistic, since the competitive market with fully informed patients is not typical of Medicare hospital admissions. There are, however, precedents for per-admission indemnities to patients. The most common arrangement is a modified indemnity, in which insurance pays "up to" a certain amount in connection with a particular type of admission. Such arrangements have been common for normal delivery and for other obstetrical procedures; they could also be used for reasonably well defined surgical procedures, one suspects, especially if there were an exceptions process. A pure indemnity in which the patient could retain as cash anything not spent is less common, although some indemnity payments for loss of limb or for a hospital confinement come close.

The main reason for considering patient indemnities is to raise the possibility that some patients--presumably those who are not poor, who feel themselves to be well informed, and who are contemplating an admission for a reasonably well defined illness, might prefer to have the option of making supplemental payments or receiving a reward if they select a less expensive form of care. Some type of preadmission bidding might make such an approach feasible. As in any small number situation, patient indemnities would not work well if there must be substantial variation in severity within DRGs. A DRG needs to be "well-defined." One way of dealing with such uncertainty is to insure it: to pay a per DRG payment, but to cover additional patient payments (if any) beyond the indemnity amount with more deductible or copayment.

Patient indemnities are not likely to serve as the predominant form of per case payment because of limitations on patient bargaining power and variations in severity. They may, however, have some applications.

H. OTHER PER-CASE PAYMENT OPTIONS

There are three other variants of per-case payments which we can briefly consider. The most far-reaching form of per admission payment would be an arrangement in which a single payment was made for hospital and physicians' services combined. Then whoever is managing the process of care, whether it is the individual physician, the medical staff, or the hospital's administration, would have financial incentives to consider all of the costs of care, both those covered by Medicare Part A and those covered by Medicare Part B.

Such an arrangement would in principle be superior to the partial approaches we have discussed so far, since it brings the full set of costs to the physician-decisionmaker's attention. However, one suspects that, at the moment, it would be regarded as too revolutionary. One might want to consider having an all-inclusive per case option that could be elected by a group of physicians, akin to a Medicare PPO. Most of our earlier comments about the need to handle variations in cost would apply even more strongly here.

A second option would be an arrangement which used gatekeeper physicians, but not necessarily the primary attending physician, to receive payment and to coordinate the process of care. it might even make sense to require that the gatekeeper not render services himself for which he receives revenues. Such an arrangement would have desirable incentive properties, although it would exacerbate the fee splitting aspects of per case payment.

A third option would be payment on a per episode of illness rather than a per admission basis. The desirable overall incentive properties of this method, and its practical implementation problems, have been discussed in other papers. The only comment that we would make here is that it would seem to require a larger payment entity, particularly if an episode of illness could require multiple admissions to different hospitals.

A fourth partial approach would be one which paid only hospital based physicians on a per admission basis. Either the clinical department, the single-specialty group, or the individual physician might be used as the

payment entity. Since single specialty groups are fairly common here, and since they have the other advantages outlined above, that might be the most appropriate approach. However, it remains to be shown whether there will be any appreciable efficiency gains from such a partial approach.

I. MARKET EQUILIBRIUM WITH PER CASE PAYMENT

If physicians are paid on a per case basis, they will come to be concerned about more than the clinical and personal aspects of the physicians to whom they refer or whose services they use for their hospital patients. They will also be concerned about their "costliness," both in terms of the payments they require per service and the number of services they typically use. Existing medical staffs in particular are likely to contain some high-using physicians, and such individuals will be undesirable as partners for sharing revenues, whatever the payment entity.

Market equilibrium will be achieved in one of two ways if groups are permitted to form and reform voluntarily. There may be a sorting of physicians by costliness (particularly if it is administratively expedient to treat all members of a revenue-sharing group more or less equally). A kind of segregation by efficiency would be expected to occur. The final equilibrium could well be efficient, but it would obviously imply a drastic reorganization as compared to current patterns, especially if the hospital medical staff serves as the payment entity. Moreover, in small markets such segregation may not be possible, so that there will be considerable tension and perceived inequity. Physicians may be expelled from medical staffs (if the staff is used as an entity) not because of clinical incompetence but

because of costliness. However, adjustment costs aside, the fact that high cost physicians may lose access to hospital facilities is, in a very real sense, exactly what the objective of per admission payment ought to be; there is no right to do business for inefficient firms, and this holds whether the inefficiency comes from aptitude or ineptitude.

Another possibility, however, which seems more likely, is that the way payments are shared with physicians will eventually take efficiency differences into account. High cost physicians will be forced to take lower payment rates or lower shares of a group's surplus revenues, while efficient physicians will be able to claim larger shares. Our conjecture is that voluntary groups will be better able to make these adjustments than will entire medical staffs.

Finally, hospitals whose medical staffs are, on average, high cost will not be associated with as high levels of physician incomes as those whose staffs are more efficient. If income is shared to some extent on a per member basis, all physicians will presumably desire to leave the former hospitals for the latter. However, it is by no means obvious that they will be given privileges. A physician's costliness record will become part of the credentials that are examined when staff appointments are made.

IV. WHO SHALL BE PAID--WHEN CAPITATION PAYMENTS ARE MADE?

A. CAPITATION PAYMENTS: ALTERNATIVE ARRANGEMENTS AND RECIPIENTS OF PAYMENT

If the Medicare program moves to a partial or full capitation system, the issue of who is to be paid becomes critical. The feasibility of a capitation system is dependent upon the management of the health care requirements of the beneficiaries for whom care is being purchased.

A capitated system implies that the direct recipient of the capitation amount is at financial risk for that patient. If fewer services than average are provided, the payment recipient retains the surplus; if more services are needed, then the payment recipient suffers a loss. Thus, the payment recipient has financial incentives to constrain service use by beneficiaries. The incentives could result in the provision of low quality or inadequate services, especially if the payment recipient is concerned with short-term financial gain. As the early California Medicaid Prepaid Health Plan (PHP) experience demonstrated, entrepreneurs with short time horizons and little interest in retaining enrollees can make substantial financial gains under a capitated system by providing minimal services (Kimbell and Yett, 1976). At the same time, it seems likely that, for a capitated system to produce the desired outcomes (i.e., provision of necessary services in a timely and efficient manner and reductions in the quantity of unnecessary or inappropriate services provided), the recipient of payment and the providers of service should be related in a way that permits the payment recipient to influence the quantity and quality of care provided.

In addition, the pool of beneficiaries should be large enough to permit _some_ risk spreading to be feasible. A variety of arrangements may satisfy these requirements. There is a fairly large body of literature that

examines the relationship of use and cost outcomes under capitated systems to the organizational form and the financial arrangements in place (Luft, 1981; Langwell and Moore, 1982). These studies suggest certain arrangements are more effective than others--but do not present one particular organizational arrangement as clearly superior to all others.

In this section, we explore the desirability of selecting alternative recipients of payments when the unit of payment is capitation--a fixed payment for a specified set of services over a defined time interval. The set of services included in the capitation payment may be limited to ambulatory care, only (i.e., Part B services), or may include both Part A and Part B services under Medicare. Our discussion of alternative recipients of capitation payments will include attention to the implications for both narrower, Part B only capitation and broader Part A and Part B capitation.

In our considerations of alternative payment recipients, we will be guided by several general principles:

(1) Under any capitated system, each Medicare beneficiary would choose or be assigned a case manager or primary physician who has overall responsibility for all health services provided to the beneficiary. It is not necessary that this case manager/primary physician be the direct payment recipient, but the direct payment recipient should have some mechanism for influencing the management of the beneficiaries' care.

(2) The payment recipient should have a long-term commitment to the role of health insurer/deliverer to the Medicare population.

(3) Financial risk should be pooled, in order to reduce risk and to prevent the payment recipient from having an excessively powerful financial incentive to constrain services for cases which are so catastrophically expensive that the cost greatly reduces or eliminates the recipient's wealth. This implies that the payment recipient have a fairly large number of Medicare beneficiaries "enrolled," that reinsurance/stop-loss policies be available, and that proof of solvency be required. This is particularly of concern if consideration is given to capitating individual physicians.

These general principles act as a framework for the examination of alternative payees under a fully or partially capitated Medicare program.

It should be noted that HCFA has been, for several years, providing Medicare beneficiaries with an option to elect a capitated system under a demonstration program operating in 15 market areas. During 1985, under the TEFRA-based regulations, all qualified organizations will be able to apply to enter this market. To date, only Federally qualified HMOs and a few, thoroughly reviewed, Competitive Medical Plans (CMPs) are providing services to Medicare beneficiaries on a capitation basis. In all cases, HCFA pays the HMO or CMP directly; the HMO/CMP then contracts with medical groups, individual physicians, and other providers--under a wide variety of financial arrangements. In this paper, however, we are assuming a broader

scenario which would eliminate or greatly reduce the existing fee-for-service system. In that world, Medicare beneficiaries would be required to elect a case manager/primary care physician or organization in order to receive care.

The issue of critical concern, then, is who should receive payment--the case manager/primary physician? a larger group of case managers/primary physicians organized for the purpose of handling payments on behalf of Medicare beneficiaries? a formal comprehensive delivery system which the case manager/primary physician must join if s/he wants to serve Medicare beneficiaries? or the patient who then can choose to negotiate for services, supplementing the capitation payment out-of-pocket or purchasing basic or supplemental insurance?

B. CAPITATION PAYMENTS TO WHOM?

Under a full or partial capitation system, there are several levels of potential recipients of payment:

- Fiscal intermediaries, insurers, or other very large organizations equipped to provide the administrative services necessary to provide health service arrangements for up to several million Medicare beneficiaries
- HMOs and other Competitive Medical Plans
- Existing or specially organized medical groups
- Individual physicians who agree to act as case managers/primary care gate keepers

- o Medicare beneficiaries

The advantages and disadvantages of directing payments to each of these alternative payees are reviewed in this section.

1. Paying an Insurer, Fiscal Intermediary, or Other Very Large Organization

Capitation payments might be made by HCFA to a very large organization such as an insurance company or fiscal a intermediary. These organizations would receive lump sum payments on behalf of all Medicare beneficiaries assigned to them--or chosen by them. The organization receiving payment would then be responsible for managing and paying for the care received by beneficiaries. The primary advantages of this alternative are:

1) HCFA could move immediately to a fixed prospective budget for the Medicare program, with a minimal level of intervention by HCFA in the Medicare market.

2) It permits the potential for retaining a diversity of financial arrangements on behalf of Medicare beneficiaries. Although the recipient of payment is capitated, the arrangements for health services financing and delivery at the point of care could be diverse.

A primary advantage of paying insurers or intermediaries a capitation amount is that this would create incentives for these organizations to negotiate with providers prospectively on price and to develop utilization

review and approval mechanism to identify and constrain unnecessary or inappropriate services. Under the present system, intermediaries and carriers process claims and perform review functions. However, since costs are borne by HCFA, incentives to perform claims review aggressively and to negotiate on prices is minimal. In effect, capitation payments to intermediaries transfers the cost control problem from HCFA to these organizations, because they may be less subject to political pressure and less constrained by bureaucracy, they may be more effective.

If HCFA chose to contract with insurers on behalf of Medicare beneficiaries, one approach would be a system similar to the FEHBP. A number of qualified insurance plans--traditional and HMO/CMP--would be offered to Medicare beneficiaries at regular intervals. HCFA's contribution to the plan would be fixed (perhaps at the AAPCC) and insurers would be required to provide a minimum benefit set, but could offer substantially greater benefits than the current Medicare program. Medicare beneficiaries would choose the insurance alternative which most closely matches their needs. If the premium exceeds the government portion, beneficiaries would pay the balance; if the costs of a minimum benefit package are below the government's portion, some sharing of savings between the government and the beneficiary might be deemed reasonable.

This approach is similar to that suggested by Enthoven (1981) and Ginsburg (1981) in their discussions of a Medicare voucher program. Since these original issues were raised, however, the Medicare program has moved to a limited version of this program--permitting Medicare beneficiaries to elect an HMO option rather than stay in the fee-for-service system. The

government pays 95 percent of the Average Adjusted Per Capita Costs to HMOs on behalf of Medicare beneficiaries to enroll; in most cases, Medicare beneficiaries who enroll in HMOs are receiving a considerably broader set of benefits than under the traditional Medicare program. With this program already in place, it is not obvious that a move to the FEHBP-model Medicare system would be politically or administratively infeasible.

One potential disadvantage of this option is the need for the Federal government to become much more involved in regulating or monitoring the practices of participating insurers in order to ensure that quality and benefit standards are met. However, this has been handled without undue difficulty for the FEHBP, and by other very large employers, and probably does not represent a major concern.

Another issue which may be perceived as a disadvantage is the fact that such a system would reduce the role of the Federal government in the Medicare health delivery system. Instead, insurers would assume direct responsibility for monitoring quality and costs and would intervene with providers when necessary. To the extent that public control, or a public presence, in the Medicare market is desirable, this system would reduce that public role.

2. Paying an HMO or Other CMP

Health Maintenance Organizations and Competitive Medical Plans combine an insurance role with an organization for delivering health services to enrollees. The primary advantage to directing capitation payments to HMOs

and CMPs is that these organizations already exist and have been (in most cases) structured to manage health care in a less costly manner than is observed in the fee-for-service system, where overall case management is rare. Since HMOs/CMPs have considerable experience with capitation and case management, directing payment to these entities under a Medicare capitation system involves less uncertainty than would contracting with traditional insurers, with medical groups, or with individual physicians.

In essence, however, this alternative is a subset of the previous option discussed above. HMOs _are_ insurers, as well as health care delivery systems. If the Federal government permits Medicare beneficiaries to choose to be insured by an HMO, it is unclear why Medicare beneficiaries should not also have the option to choose to be insured by--for example--Blue Shield or Connecticut General.

Potential disadvantages of directing capitation payments to HMOs/CMPs include:

- The possibility of cream-skimming from the traditional fee-for-service market--resulting in HMOs receiving excessive payments for enrollees--is a concern.
- The need for the government to review and approve HMOs for Medicare participation and to monitor them on a continuing basis requires the development or expansion of the government bureaucracy.
- The fact that there are only a relatively small number of HMOs currently operating, insufficient to provide services to all, or

even a large fraction of, Medicare beneficiaries, indicates that this option is currently of limited applicability.

- Mandating Medicare beneficiaries' participation in an HMO/CMP is probably politically infeasible. Similarly, mandating that all providers affiliate with an HMO if they wish to serve Medicare patients is infeasible. Consequently, capitating HMOs/CMPs will require acceptance of a diverse system.
- If the capitation system is limited to Part B Medicare services only, there might be little incentive for HMOs/CMPs to participate since the cost savings observed in these organizations are primarily attributable to lower hospital admissions.

Despite these comments on the advantages and disadvantages of directing capitation payments to HMOs/CMPs, Congress and HCFA have already determined that it is appropriate to implement capitation payments for Medicare Part A and Part B services and to direct these payments to HMOs and CMPs which are Federally qualified or otherwise meet certain standards. Therefore, for this paper, the more critical issue is whether HCFA should permit entities other than approved HMOs/CMPs to receive capitation payments on behalf of Medicare beneficiaries.

3. Paying Large Medical Groups[1]

Another alternative which may be considered is for HCFA to contract on a capitation basis for Part B, or all, services with medical groups--either existing groups or groups formed specifically to act as a fiscal

intermediary between HCFA and participating physicians. Existing medical groups offer the advantage of an experienced organization which is already providing services to Medicare beneficiaries. In fact, it is becoming increasingly common for existing medical groups to establish HMOs in order to retain or increase patient loads. In most cases, the HMO then capitates the medical group for enrollees' ambulatory services[1] (U.S. DHHS, 1985; Mathematica Policy Research, 1984).

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[1] The discussion in this section focuses on medical groups which are fairly large (e.g., 8 or more physicians). Smaller groups are considered in the next section which examines the possibility of paying individual physicians.

Thus, directing capitation payments to existing medical groups differs only slightly from contracting with HMOs:

(1) Medical groups which have not previously participated in a capitated system may require some time period of "learning" before they develop and implement appropriate utilization controls and quality safeguards.

(2) Smaller medical groups may not have sufficient numbers of Medicare patients to spread the financial risk adequately. Some provision for re-insurance/stop-loss policies may be needed.

(3) Medical groups will initially be inexperienced at negotiating with other providers for outside services need by capitated enrollees. They may have insufficient market power to elicit maximum discounts from hospitals, referral physicians, and others.

(4) Medical groups which accept capitation payments on behalf of Medicare beneficiaries may not be subject to state insurance regulation laws. There may be inadequate protection of beneficiaries against plan involvency.

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[1] Again, in considering capitation for Part B services only, it is noteworthy that nearly all HMO arrangements with medical groups include some risk-sharing for hospital costs.

(5) There are no current mechanisms in place to review and approve medical groups for participation in a Medicare capitated system. Implementing such an innovation could require a substantial government bureaucracy to review, approve, and monitor such groups.

(6) Mandating that Medicare beneficiaries all use those groups which have agreed to accept capitation may be politically unacceptable as a restriciton on beneficiaries' freedom of choice.

These disadvantages are significant and may weigh heavily against adopting this payment option. One potential means for overcoming many of these disadvantages, however, is for a number of medical groups, and/or individual physicians, to join together to form an independent "umbrella" entity--similar to an IPA-model HMO--to act as the financial intermediary between HCFA and the medical group or physician. While this new group would still have to be reviewed and approved for participation in the program, it might be large enough to meet many of the other objections raised above:

1) financial risk could be spread across all members' enrollees and better reinsurance arrangements might be available to larger groups

2) a larger group could generate sufficient market power to negotiate sizable discounts from outside providers

3) these would be greater and faster "learning" among the participating physicians, particularly if the umbrella organization is staffed by individuals experience with HMO

4) there would be fewer separate entities for the Government to approve for participation and the necessary bureaucracy would be smaller.

This type of arrangement might be considerably more feasible than would capitating individual medical groups. However, as a mandatory policy, it too is almost certainly politically infeasible.

4. Paying the Individual Physician in Solo or Small Group Practice

There are some advantages to directing a capitation payment for all medical services or for all Part B services to a single gatekeeper physician:

1) Doing so would avoid the need for formation of new organizational entities to accept capitation. With only 6 percent of the population presently enrolled in HMOs, the feasibility of large scale capitation payment to such organized groups is limited.

2) It would place individual physicians at risk for costs, and those financial incentives would not be diluted at the level of the individual physician; the individual physician would therefore consider the correct measure of the cost of resources used on behalf of Medicare beneficiaries.

There are however, some crucial disadvantages:

1) Because the direct cost incentives on individual physicians are not diffused, and because the individual physician is in a much better position than insurers or an HMO-like organization to assess the potential financial risk under capitation, cream-skimming would be a significant problem if capitation payments are not adjusted for severity.

2) The individual physician's patient load is too small to permit much risk sharing, so that physicians may be unable or unwilling to accept risk.

3) Individual physicians have limited market power and will be less able to negotiate advantageous financial arrangements with referral physicians and other providers.

4) The risk of financial insolvency may be quite high unless physicians have fairly extensive stop-loss insurance, especially if the capitation also includes hospital services. Moral hazard and transactions costs may make reinsurance policies expensive.

5) It would be politically infeasible to mandate capitation for all physicians. If put into effect, physicians might refuse Medicare patients.

6) The government would be unable to effectively monitor all individual physicians' practices. Competition and patient information might be an inadequate substitute.

At present it does not appear that universal and mandatory capitation of individual physicians is feasible. If capitation is to be used at this level, it will have to involve some partial approach.

One possible partial approach, one for which there is some precedent, is to capitate for some, but not all, physician services. One model here is the British arrangement of capitated GPs for outpatient services. Another is the process of capitating a gatekeeper physician for a designated population for specific services, as in the ESRD and EPSDT programs.

It would appear that there may be some scope for applying this gate keeper approach to other similar populations. For example, capitation for the routine medical care of nursing home patients may be feasible, especially if implicit insurance is provided by the shift to fee-for-service when hospitalization occurs. Of course, in permitting such a switch some of the beneficial incentives of capitation are lost, but as a transitional procedure, to give both physicians and HCFA some experience with more general capitation, such a process may make sense.

Still another approach would be to designate a population with a specific set of chronic diseases, and capitate for physicians' services in connection with those diseases. Rheumatoid arthritis, Alzheimer's disease, and other similar illness might be suitable candidates.

Here again, especially as a transitional process, one might wish to make acceptance of capitation be voluntary, but with some financial bonus. Permitting physicians to elect capitation on a patient-by-patient basis would obviously lead to serious selection problems, but voluntary capitation for a physician's full set of designated patients might be workable, and was in fact used in the ESRD program.

5. Paying the Patient

To round out our discussion of "who could be paid" under a capitated Medicare system, we must consider the option of directing the full capitated payment to the Medicare beneficiary. Versions of this option might include:

(1) Payment directly to the beneficiary, permitting him/her to use the payment as desired--to insure against medical expense, join an HMO, strike a deal with a physician, or just use the money to pay incurred medical bills on a fee-for-service basis.

(2) Providing the beneficiary with a voucher which can be used to purchase health insurance.

Either of these alternatives introduces incentives for Medicare beneficiaries to search for the optimal arrangement, given their own health status and preferences. Paying the beneficiary directly may also permit the beneficiary to retain greater freedom of choice.

The first alternative listed above, however, may not be considered desirable--by societal standards--nor is it likely to be politically feasible. Handing Medicare beneficiaries a lump sum payment for annual medical expenses--without limiting their choices--could result in poorer beneficiaries using the funds for other purposes, then relying on charity or becoming bad debt cases when they become ill. If one social goal is to assure access to medical care by the elderly, regardless of income, this objective may not be achievable under option 1 for paying the patient. In addition, to the extent that the poor elderly rely on charity and bad debts to obtain medical care, there are certain to be political repercussions associated with this option. However, this option might be given consideration for beneficiaries who meet some, relatively high, income standards.

The first and second options for paying the patient directly under a capitated Medicare program would present other problems without government regulation to set minimum benefit levels and to "police" insurers with which Medicare beneficiaries contract. Consumers may be relatively uninformed about health insurance coverage and may have difficulty understanding insurance coverage provisions.

In fact, the current program which permits Medicare beneficiaries to choose an HMO option is equivalent to the second alternative option for paying the patient. Medicare beneficiaries are, in effect, given a voucher for 95 percent of the AAPCC and told that they can exercise this option by enrolling in an approved HMO or they can remain in the fee-for-service system. The government reviews, approves, and monitors participating HMOs,

mandates minimum benefits, and requires annual open enrollment periods. Expanding this limited capitation program to permit Medicare beneficiaries to choose among a wider set of options, including traditional insurance, would not appear to be a radical step.

V. THE QUESTION OF ASSIGNMENT

A. CURRENT POLICY

At present, Medicare directs payment to the Medicare beneficiary when covered services are used and a claim is filed. The beneficiary can choose to assign benefits over to the physician, however. The physician who accepts assignment agrees to accept Medicare's CPR fee as payment-in-full--billing the patient only for specified deductibles and 20 percent coinsurance--and handles the paperwork necessary to file the claim. The patient, then, has incentive to assign benefits--potential cost saving and reduced paperwork.

A number of studies have examined the acceptance of assignment by physicians and have concluded that physicians are most likely to accept assignment when the size of the bill is large, when bad debts or collection ratios are relatively high, and when the CPR level is relatively closer to the physician's customary charge for the procedure (Mitchell and Cromwell, 1982; Rice and McCall, 1983; Sloan, Mitchell, and Cromwell, 1978; Paringer, 1980). Although assignment rates have declined from a high of 61.5 percent of claims in 1969 to 53 percent of claims in 1982, the percentage of

Medicare physician expenditures accepted on assignment increased from 47.6 percent in 1976 to 54.1 percent in 1982 (Staff Report, S. Prt 98-106, 1983).

Physicians who do not accept assignment of Medicare claims are free to bill Medicare beneficiaries for the difference between their charge for a service and the amount that Medicare allows for that service. Medicare beneficiaries are therefore at risk for more than 20 percent of the Medicare allowed fee when assignment is not accepted. The primary purpose of the assignment option is to limit out-of-pocket costs to Medicare beneficiaries.

As the Medicare program has responded to rapidly rising expenditure levels with imposed limits on physician fee increases, there has been concern on the part of Congress and HCFA that physicians may shift greater costs to Medicare beneficiaries by declining assignment. (Staff Report, S. Part 96-108; Etheredge 1984). A number of approaches to ameliorate this perceived problem have been proposed including offering extra financial and paperwork reduction incentives when assignment is accepted or shifting to a mandatory assignment policy (Etheredge, 1984). Cromwell and Mitchell's study (1983) of an "all or nothing" assignment policy indicates that total assignment rates would decline by nearly 10 percent if that policy were adopted. It is generally conceded that adopting a mandatory assignment policy for the Medicare program would result in a reduction in access to physicians for Medicare beneficiaries--similar to the current situation which faces Medicaid recipients.

Beginning in Fall 1984, the Medicare program offers a "participating" physician category. Physicians who participate in Medicare agree to accept

assignment for all Medicare claims, rather than decide on a claim by claim basis to accept assignment. Medicare will publish the names of all participating physicians and distribute this list to Medicare beneficiaries in each locality. In addition, as an incentive to participation, participating physicians have been offered higher fee increases at a future time when the current fee freeze is lifted. The effect of the Medicare participation option is to re-direct the flow of funds from the patient to the physician. While patients benefit from this arrangement, there may be some instances when patient control of payment provides incentives to physicians for quality of care or amenities which would be desirable.[1] In the initial year of this Medicare participating physician program, nearly 30 percent of all physicians have indicated acceptance to HCFA. As a result, in the first month of the program--November 1984--66 percent of claims were accepted on assignment, compared with 56 percent of claims in fiscal year 1984 (American Medical News, February 8, 1985). This suggests that physicians may respond positively to payment options which include mandatory assignment, if some positive rewards are included in the option.

B. ASSIGNMENT UNDER PER CASE REIMBURSEMENT

The discussions of the appropriate policies on Medicare assignment have been conducted in the context of the existing fee-for-service reimbursement system. The unit of payment options which are now under consideration may require a different approach to assignment policy. Under a per case (or per episode of illness) payment system, the question of assignment will become an even more important issue.

If the physician does not accept assignment for a per case payment, the financial constraint on his behavior is weakened. Rather than control costs, he may avoid the Medicare limit by billing patients for any excess. Presumably patients would resist such extra bills; as compared to the current system of 20 percent copayment, they would pay the full amount of any extra charges. However, the constraint is not as binding as it would be if additional billing were forbidden.

Of perhaps greater importance, patients might have to bear the rising costs of more severe illness themselves unless the payment rate can be varied. (It is unlikely that offsetting cash payments to the most seriously ill patients would even be feasible.) One would prefer the kind of averaging of over- and underpayment which will occur with mandatory assignment. Competitive pressures from risk averse patients may deter even the physician who is permitted to bill for more severely ill patients from doing so, but these pressures may not be perfect.

On a more positive note, allowing balance billing under a Medicare per case payment system could encourage Medicare beneficiaries and primary physicians to do considerably more "shopping" for lower cost providers. If the physician is aware of the Medicare allowed payment, s/he may become a more knowledgeable purchasing agent for the patient--even when balance billing is permitted.

Overall, it appears that HCFA faces two options under a per case payment:

1) Impose mandatory assignment, insisting that physicians accept the Medicare allowed per case payment as payment-in-full--billing patients only for any deductible and coinsurance requirements which may be required by HCFA. Adopting this option may, over time, result in reduced access and a two-tiered medical care system unless per case payment levels are kept at a relatively high level, or other mechanisms are used to promote access.

2) Continue the current voluntary assignment policy--including the Medicare participating physician option. This policy will permit patients to have maximum flexibility in choice of providers, trading off higher out-of-pocket prices for desired higher levels of quality and amenities. In some cases, it may even be efficient to permit some patients to share the risk of severity variation with physicians (e.g., heavy smokers).

The voluntary assignment option will be somewhat more complex under a per case payment system since the patient or the case manager/payment recipient will find it necessary to coordinate care and costs to a greater extent.

C. ASSIGNMENT UNDER A MEDICARE CAPITATION SYSTEM

A capitated system is the equivalent of mandatory assignment under Medicare for Part B only or for all services. Patients do not receive direct payment, are not (under most proposed versions of this unit of payment alternative) liable for out-of-pocket costs which are greater than the actuarial equivalent of a 20 percent coinsurance requirement plus the

deductible under the fee-for-service Medicare program. Thus, if Medicare moves to a full or partially capitated system the issue of the assignment option appears to be irrelevant.

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